AIR CONDITIONING HEATING & REFRIGERATION NEWS
The Newspaper of the Industry
RESIDENTIAL — COMMERCIAL — INDUSTRIAL
May 18, 1959

Issued every Monday at
450 West Fort St., Detroit 26, Michigan
Established 1926
Member, Associated Business Publications — Member, Audit Bureau of Circulations

Vol. 87, No. 3, Serial No. 1,573
Trade Mark Registered U.S. Patent Office. Copyright 1959, by Business News Publishing Co.
Subscription Price, $6 Per Year (U. S. and Canada). Foreign $10.00 Per Year.
Reentered as second class matter October 3, 1936, at the post office at Detroit, Mich., under the Act of March 3, 1879.

Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
Quotes of the Week
Woe Is Michigan
From Discomfort to Dissatisfaction In Several Uneasy Lessons
Distinguished Citizen Ruthenburg

Stories of the Week

Home from Sunday School, a modern child related the "story-line" of the Israelites' crossage of the Dead Sea thusly:

"While Gen. Moses got an intelligence report that the Egyptian forces were closing in, he ordered his engineers to throw pontoon bridges across the Red Sea and had the chemical warfare detachment throw a smoke screen to his rear. He also brought his air force in and airlifted most of his forces across the water."

"Did your Sunday School teacher tell you THAT?" shocked his mother.

"No," said the kid, "but you wouldn't believe what he did tell us."

Mouse was placed in a missile nose cone, orbited around the earth, and finally plucked out of the sea.

Back home among his friends in the caged mice fraternity at Cape Canaveral, he squeaked at length about his ordeal.

"Humph," snorted another mouse. "You're all right now. They gave me cancer."

One of our staff members told us about the parish priest who, on a recent Sunday morning, scathingly denounced the unknown "polecat" who, he said, had been putting counterfeit dollars in the collection plate the last few Sundays.

Not only that, the good father fumed, but the culprit had been enclosing the bogus bills in Methodist envelopes!

Quotes of the Week

"The keys to happiness," Dr. Albert Schweitzer recently pronounced, "are good health and a bad memory."

The greatest weapon wielded by man is not the atomic bomb. It is the word. Through words good communicators can control millions. Ideas are transmitted by the spoken or printed word, and the master of the word is the matter of fate.—DR. J. J. NORTH.

"If you don't want Americans

(Concluded on Page 16, Col. 1)

'Beat the Heat Week' Is Now— May 17 to 24

NEW YORK CITY — This week—May 17 to 24—is "Beat the Heat Week."

This week the room air conditioner section of National Electrical Manufacturers Association unlimbers its big advertising and promotional guns to convince consumers that now is the time to buy air conditioners.

"Our Beat the Heat campaign will show customers how they can save their tax dollars by encouraging them to buy their units now before the Federal excise tax is imposed," declared Joseph B. Ogden, section chairman and vice president of Airtemp Div., Chrysler Corp.

While the 13 manufacturer members of the section are expected to spend many thousands of dollars in company brand advertising, NEMA has already provided newspaper publishers and others with the necessary supplementary information and news material to back up the industry effort.

Two full newspaper-size pages of such material was printed in the *"Publishers' Auxiliary"* trade journal late in April.

Westinghouse Electric Corp. announced that it will list 1,300 dealers in a *Life* magazine advertisement this week and will include "Beat the Heat" room air conditioner commercials in its "Desilu Playhouse" and "Queen for a Day" television programs.

Dealers listed in the ad have received "Beat the Heat" wall and window banners and other promotional material.

Fedders is urging its dealers to tie in with NEMA's "Beat the Heat with an air conditioner" banner with a Fedders banner that says "Buy a year-round Fedders heat pump and beat the cold, too."

Fedders plans to carry a "Beat the Heat" message on its big electric sign in Times Square here.

NEMA has also prepared for distribution a consumer booklet "How to Choose the Room Air Conditioner that's Right for You."

California Schedules License Law Hearing

LOS ANGELES—First hearing on a proposed amendment to the California state license law to require the installation of packaged units by a licensed contractor will be held on May 19.

The hearing will be before the Assembly committee on government and efficiency. The amendment was proposed by Assemblyman Hanna of Orange County.

The construction industry as

(Concluded on Back Page, Col. 1)

NEWS Publishes '59 Packaged Liquid Chiller Specifications Issued by 28 Manufacturers

DETROIT — Specifications on packaged liquid chillers for air conditioning applications produced by 28 manufacturers have been collected by AIR CONDITIONING, HEATING & REFRIGERATION NEWS and are presented in this issue.

Listings begin on page 36 and continue through page 40.

The packaged liquid chiller, now applied primarily for air conditioning jobs (although it has many and varied straight refrigeration applications) has been a star saleswise among the industry's products in the past several years.

Available statistics indicate that dollar volume sales of packaged liquid chillers were double in 1958 over what they were in 1955.

Figures seem to show that while sales of many types of air conditioning equipment were tending merely to hold at previous levels, or in some instances receding from previous highs, sales of packaged chillers continued to increase from year to year.

To the best of the NEWS' knowledge, these specifications cover almost every manufacturer of this type equipment in the United States. Data is believed to be the most complete available.

The data presented here is limited to mechanical specifications. Though it was considered originally, no operating data is

(Concluded on Page 36, Col. 1)

RELATED ARTICLES on liquid chillers include a forecast of sales trends (page 30), research results (page 32), a discussion of requirements of a brine system (page 26), and an unusual application in a motel (page 34).

BEHIND PAGE ONE . . .

RESIDENTIAL Air Conditioning
User Forum Finds Many Housewives Enthusiastic About Benefits 8
COMMERCIAL Air Conditioning
Chillers Refrigerate Ice Skating Rink And Cool Empress Motel In Atlantic City 34
8 Outdoor Thermostats Automatically 'Mastermind' Heating-Cooling Window Units 27
INDUSTRIAL Air Conditioning
Air Conditioning Expected To Improve Centuries-Old Process: Salt-Curing of Hides 14
- **Making Money Out of Service Dept.** 15
- **World Trade News** 23
- **Ammonia System Safety Measures** San Francisco Blast Victim Offers Several Recommendations 24
- **Technical Center** Requirements of a Brine System 26
- **Refrigeration Problems** Water Control Valves with Tower? (2) 42
- **Servicing Auto Air Conditioners** 45

Worthington Names A. James Hackl

HARRISON, N. J.—A. James Hackl has been named general manager of Worthington Corp.'s Air Conditioning & Refrigeration Div., it was announced by Frank J. Nunlist, group vice president.

A. J. Hackl

Hackl will be located in the division's main office at the Ampere Works in East Orange, N. J. Other division installations producing commercial and residential air conditioning and refrigeration units are located in Decatur, Ala., and Holyoke, Mass.

Prior to joining Worthington, Hackl was with Trane Co. as general sales manager for packaged air conditioning products.

Cooling Industry Ready for Steel Strike

DETROIT—If a steel strike should occur on July 1, the air conditioning and refrigeration industry is ready.

A representative sampling of manufacturers in all phases of this business indicates that they have accumulated sufficient steel supplies to keep production going for at least 60 days and in some cases for 90 days thereafter.

They anticipate that troubles could crop up after 60 days and fear the effects of a strike moving into September.

Fedders Corp., for instance, has enough steel on hand to tide it over through the remainder of the model year, which ends on Aug. 31, a Fedders official said.

"We deal with five or six different steel companies," he added. "We have had our orders in and are getting satisfactory deliveries."

B. Smith, director of production programming and procurement for Airtemp Div. of Chrysler Corp. said, "A steel strike will have no effect on our programmed production. We have protected ourselves sufficiently by ordering steel through our September program. Should a steel strike last longer than two months, we will be in trouble."

A Carrier Corp. official said, "Our main concern would be with the duration of a cutoff in the supply of steel. We anticipated our needs for six weeks' operation dating from July 1 and a cutoff for that period would not affect us seriously.

(Concluded on Page 43, Col. 1)

2 New Orleans Physicians Say:

Cool Room Aids Heart Disease Victim

CHICAGO — Patients with heart disease who must be hospitalized in hot weather are greatly helped by air conditioning of their rooms, according to two New Orleans physicians.

Air conditioning of hospital rooms is also especially helpful, the doctors said, to patients with chronic illnesses and with bronchial asthma.

Drs. George E. Burch and Nicholas DePasquale compared two groups of patients treated at Charity hospital, New Orleans, in air conditioned and non-air conditioned wards. Results are reported in the May 9 Journal of the American Medical Association.

The air conditioning was beneficial to patients mainly because they slept more soundly, longer, and more restfully, the doctors said. Patients who were short of breath found it easier to breathe, thus relieving anxiety and apprehension.

On the whole, air conditioning "eliminated sweating, fostered a calm and quiet atmosphere, improved morale of both patients and

(Concluded on Back Page, Col. 1)

Engineer Develops Outdoor, Underground Boiler Shelter

CHICAGO — Why have the house heating boiler in the basement, utility room, or kitchen?

Why not have boiler in its own outside, underground space and thus reduce building costs and save valuable room in the house?

A Chicago heating engineer recently announced that he had developed an outside, underground shelter which holds the home heating boiler, hot water tank, and gas and electric utility services.

The engineer declared that he had installed such an underground room in connection with his own home and that he had found it to be practical, the Plumbing-Heating-Cooling Information Bureau reports.

Pipe and lines from the heating unit and water tank run into the house underground. They are protected by being enclosed in concrete sewer pipe 6 in. in diameter. The concrete pipe is installed so that it is water tight.

Meters for gas and electricity are placed at the top of the underground room where they are easily accessible and can be read without disturbing the householder.

Stewart-Warner Gets 502-Unit Order for Ft. Hood

LEBANON, Ind. — Stewart-Warner Corp.'s Heating & Air Conditioning Div. has initiated shipments of 502 gas furnaces and companion central air conditioning units for installation at Ft. Hood, Killene, Texas.

Cooling units are 3, 4, and 5-ton capacity remote thermal expansion condensing units, with matching evaporator coils and cases on the furnaces.

Stewart-Warner recently started a similar contract for 750 central air conditioning systems for military housing at Eglin Air Force Base, Ft. Walton, Fla. That contract was expanded to cover air conditioning after originally calling for heating only.

General contractor for the Ft. Hood installation is Robertson Co., Los Angeles, and the mechanical contractor is Maplewood Sheet Metal Co., Maplewood, Mo.

Leece-Neville Buys A. C. Motor Div. From Sutton for Diversification

CLEVELAND — Leece-Neville Co. here announced that it has purchased the A. C. Motor Div. of O. A. Sutton Corp., Wichita, Kan.

This is a major acquisition, designed to diversify its product line to include commercial products in addition to those now being supplied to the general transportation industries, according to P. H. Neville, president of Leece-Neville.

While specific figures of the transaction were not revealed, Neville stated that when the new division is relocated and operative, it will represent a million dollar expansion for the company.

Neville continued that the acquisition represents the company's first move into the a.c. motor field, with motors soon to be produced for use on air conditioners, fans, dehumidifiers, evaporative coolers, furnaces and space heaters, forced air electric heaters, vibrator mechanism drives, and similar products.

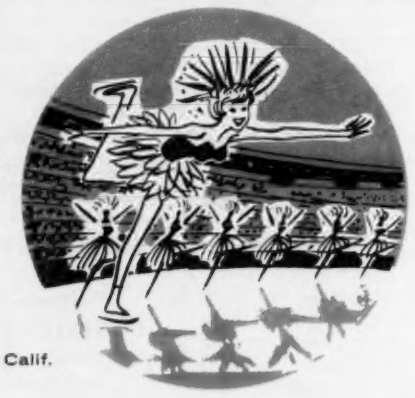
The new line, according to Neville, may be most accurately described as single phase, fractional horsepower a.c. motors of two types: shaded pole (two and four-pole), and permanent split capacitor (in four and six pole). Range of horsepower of the new motors is from 1/150 to 1/4.

Leece-Neville is a producer of d.c. motors for automotive, truck, marine, and aircraft applications. The company also produces d.c. generators and cranking motors, switches, and allied products for the general transportation industries.

Engineering the temperature...

WITH RECOLD IN THE LOS ANGELES SPORTS ARENA

The new 22,400-seat Memorial Sports Arena establishes Los Angeles as the sports capital of the nation. Recold units supply over 672,800 CFM of heating and air conditioning for this vast building.



RECOLD CORPORATION
7250 East Slauson Avenue, Los Angeles 22, Calif.

RECOLD

Designed by: Welton Becket & Associates, Architects & Engineers
Air-Conditioning Installed by Western Air & Refrigeration, Inc.

First ASHRAE Meeting In Columbus, Ohio To Be 'Commercial Night'

COLUMBUS, Ohio — First meeting of the Columbus chapter of the American Society of Heating, Refrigerating & Air-Conditioning Engineers, scheduled May 18 at the Jai-Lai Cafe in Columbus, will be unique in that it will be a "Commercial Night."

Members of the society who are employed directly by, or represent a manufacturer, will be given an opportunity to display the products of the firm they represent, and explain their function to the other members. Tables will be provided to display the various products.

Since the Columbus chapter is being formed by the merger of the former ASHAE chapter and ASRE section, part of the idea behind "Commercial Night" will be to get members acquainted with one another, and to show "what they do."

Final meeting of the ASRE section on April 27 brought out a record-breaking crowd to hear a talk by George F. Taubeneck, publisher of AIR CONDITIONING, HEATING & REFRIGERATION NEWS.

Keeping Animals Down On the Farm Should Be Easy with Conditioning

RICHMOND, Va. — The Virginia Farm & Home Electrification Council wrapped up its 20th annual conference with a forecast that there's a great day coming in air conditioning the animals down on the farm.

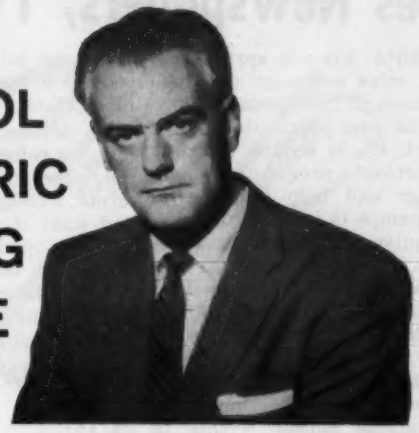
Research indicates there's a big opportunity ahead for increasing the efficiency of livestock fattening by proper nutrition with feeding under temperature-controlled conditions, said Dr. T. J. Horne, head of the VPI vocational agriculture department.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

By C. B. Ramsdell, Manager—Marketing, Central Air Conditioning, General Electric Company

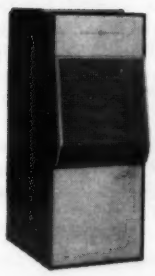
SECOND PROGRESS REPORT
on General Electric Central Air Conditioning
CUSTOMER SATISFACTION Program . . .

RIGID QUALITY CONTROL MEANS GENERAL ELECTRIC HEATING AND AIR CONDITIONING PRODUCTS ASSURE CUSTOMER SATISFACTION

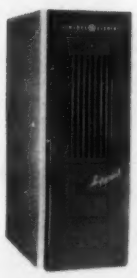


Constant safeguards and checks are maintained to assure superior quality in every step of the manufacture of General Electric heating and air conditioning products. The most modern facilities are employed for exhaustive test programs. All this is done to assure CUSTOMER SATISFACTION—the satisfaction that means good will and continued profits. And, as a bonus, most of these processes tend to cut costs in the manufacturing operation, which means lower unit cost to the dealer.

OIL- AND GAS-FIRED FURNACES



Oil furnace. High-pressure gun burner and other standard parts for easy servicing, replacement. Quick-heating "Vertifin" heat exchanger—dependable safety features. Smallest model takes only 28"x22" floor space. Only 55" high. All models fire-tested, assembled, wired at factory. BTUH output, upflow, 84,000 to 168,000—downflow-horizontal, 84,000 to 112,000.

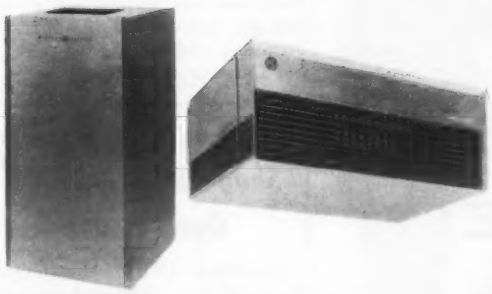


Imperial gas furnace. Cast-iron "Pinpoint" heat exchanger provides quick, economical heat. Simplified wiring, quiet performance, rugged construction. Smallest unit takes only 21"x 30⅛" floor space. Only 55" high. BTUH input (upflow), 90,000 to 210,000.

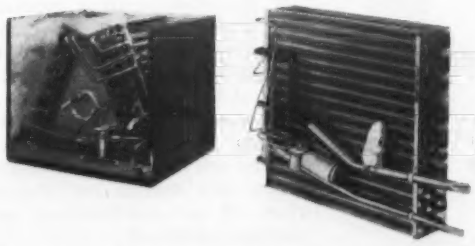
Steel gas furnace. Smallest unit takes only 15"x28" floor space. Only 55" high. Minimum clearances approved by AGA:—sides, rear and combustible flooring, zero—front and flue, 6"—above plenum, 1". Ideal for closet installation. Simplified wiring, quiet blower, advanced cast-iron burner design, "Thermal-Trap" heat exchanger with 10-year warranty. Two types—one for normal heating and air conditioning, one for above-average cooling loads. BTUH input (upflow and downflow), 75,000 to 150,000.

All furnaces "grow" into year 'round whole-house air conditioning by addition of G-E cooling coils. All handsomely styled in two-tone gray.

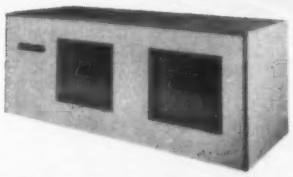
AIR CONDITIONING UNITS FOR HOMES, STORES, OFFICES, FACTORIES



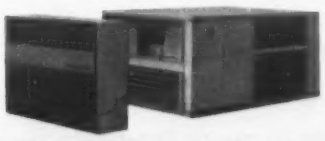
Air handling units include blower, evaporator and filter. Horizontal (shown with optional diffuser) and vertical. For residential and light commercial application when used with remotely installed G-E air-cooled condensing unit. 2 through 5 tons.



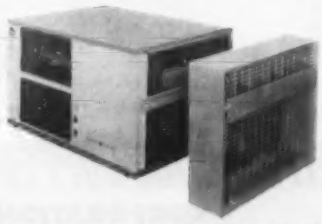
Cooling coils to convert warm-air furnaces into year 'round whole-house air conditioning. Type "A" for low headroom, upflow or downflow. Type "F" (flat) for upflow, downflow, horizontal. Five sizes: 24,000 BTUH to 60,000 BTUH.



Remote condensing units—factory-sealed—air-cooled—weather-proofed. May be placed on roof, in attic or cellar, on outside slab or shelf. Use with G-E cooling coils or air handling units. Five models—2 through 5 tons.



Packaged cooling unit—compact—air-cooled—self-contained. For use with or without duct. Decorative diffuser-filter frame for commercial in-space installation. Install in attic, crawl space, cellar, hallway—on roof, slab—through transom, wall. 2, 2½ and 3 ton sizes.



Weathertron All-Electric Heat Pump cools without water, heats without flame. Safest method of heating and cooling ever. All automatic. Capacities, split systems, 2½, 3 and 4 tons—self-contained, 2½ and 3 tons. Weathertron not available in all states.

GET YOUR SHARE OF AIR CONDITIONING PROFITS

Now—get complete information about General Electric's CUSTOMER SATISFACTION Program and a free copy of General Electric's booklet on quality control. See your General Electric distributor—or mail coupon today.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Air Conditioning Department
Tyler, Texas

General Electric Company ACN-59
Air Conditioning Dept., Tyler, Texas
Attn. Mr. C. B. Ramsdell

Please send me, without obligation, complete information on General Electric's Customer Satisfaction Program and a free copy of General Electric's booklet on quality control. I specialize in:

- ☐ Home heating and cooling.
- ☐ Commercial and industrial air conditioning.
- ☐ Both.

Name_____

Firm_____

Address_____

City_____ Zone____ State_____

1,503 Central Units Now on Lines

Tampa Electric's Heat Pump Campaign Uses Newspapers, TV, Direct Mail

TAMPA, Fla.—A spring heat pump sales campaign that will run through June is under way.

As in past years, the Tampa Electric Co. is waging a strong promotional program to encourage and help dealers sell heat pumps in its territory.

Regular large space advertisements are appearing in 22 area newspapers on the theme that the all-electric heat pump "does the job of two and does it better."

In addition, smaller 10-in. advertisements with humorous illustrations appear weekly in the two Tampa newspapers throughout the year.

Other advertising includes regularly scheduled radio and television spots, and billboards in eight city locations.

To dealers, the utility is offering a colorful brochure which tells the prospect in simple terms what the heat pump is and what it does. It also gives typical operating costs. The utility will mail free up to 3,000 of these brochures to the dealer's mailing list.

The brochure gives the following operating cost schedule:

House Size (Sq. Ft.)	— Average Annual — Heating Cost	Cooling Cost
800-1,000	$35-45	$50-65
1,100-1,500	45-55	75-90
1,650-2,000	55-65	90-115
2,100-2,500	65-75	115-140

The brochure also advises prospects that "Tampa Electric Co. invites you to call on our heat pump specialists for their advice and assistance in obtaining the correct heat pump.

"They will be glad to work with you and your architect, engineer, or air conditioning dealer to determine the proper installation for your maximum in comfort and economy."

The utility reported that, as of Jan. 1, 1959, there were 1,503 central heat pump units in its service area. Of these, 601 were installed in 1958, 401 in 1957, and 221 in 1956.

In its effort to gain even greater acceptance, the utility was presented a complete heat pump manual to all architects and engineers; is sponsoring heat pump training for professional groups such as the home builders and real estate association, the refrigeration and air conditioning contractors, and the architectural and engineering society; is gathering operating data on heat pump installations; has provided its own field representatives with portfolios of installation photographs and operating costs; has organized tours of users' homes for architects, engineers, and builders; and is promoting the use of heat pumps by builders in their model homes.

NELSON THAYER, center, general manager of the Heating & Air Conditioning Div., Sunstate Sales Corp., Tampa, gives a signed receipt for a trailer load of General Electric "Weathertron" heat pumps to Ed Spivey, left, district representative for G-E's Heating & Air Conditioning Div., as Sam George, right, vice president, Sunstate Sales Corp., Tampa, looks on. These heat pumps are already ear-marked for installation in Tampa area homes.

For your
REFRIGERATION, AIR CONDITIONING
and HEATING UNIT NEEDS . . .

Specify Quality-Controlled
PHELPS DODGE COPPER TUBE!

- All tempers and sizes for use in original equipment.
- Straight length tube tempered to meet your bending and expanding specifications.
- Quality-controlled throughout manufacture to assure finest tube properties.
- Tubes degreased and capped, or dehydrated and sealed, if required.
- Deliveries geared to your production requirements.

First for Lasting Quality from Mine to Market!

PHELPS DODGE COPPER PRODUCTS CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Denver, Detroit, Fort Wayne, Greensboro, N. C., Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N.Y., San Francisco, St. Louis, Seattle, Washington, D.C.

Halloran Will Manage Decatur Works for York

YORK, Pa.—Richard J. Halloran has been named general manager of the Decatur (Ill.) Works, York Div. of Borg-Warner Corp., it was announced by E. F. Peslar, vice president and director of operations for York.

R. J. Halloran

Halloran has been with York since 1947 and has served as assistant to President Henry M. Haase.

Other responsibilities have included general manager of the Primor Products Div. of Borg-Warner until its absorption by the York Div.; supervision of the transfer of furnace production from the Ingersoll Div. to York and the acquisition of the Lehigh automotive compressor business which is now part of the Decatur operation.

Underground Repair Shop Plans May 23 Open House

KANSAS CITY, Mo. — Open house at the only underground shop in America doing factory warranty repair on all types of air conditioning and refrigeration equipment will be held on Saturday, May 23, announces T. L. Anderson, president of Cooling Equipment, Inc. here.

The firm is showing off its new facilities recently expanded to 43,000 sq. ft. of office, shop, and warehouse in the J. C. Nichols Underground Industrial Area at 95th St. and Holmes.

Employing 30 persons during summer peaks, the firm handles factory warranty repair, installation, and service for distributors of air conditioning and heating equipment.

It is the General Electric Co. authorized maintenance station covering the area from Oklahoma to Canada and between Utah and Indiana.

Climate by Chrysler

292 ways to make your customers happier and bank deposits bigger

Ever lost an air conditioning sale because you couldn't get the exact unit needed for a job? Ever had customer complaints because you had to over-size or under-size the equipment? Not if you sell Chrysler Air Conditioning!

Only Chrysler offers you 292 combinations of packaged units, compressors, and evaporator-blower combinations to choose from. With the biggest selection in the industry at your command, you can always bid on the best—and most profitable—combination for any job. No more customer complaints. No more lost profits from makeshift jobs.

And Climate by Chrysler gives you more to sell: Special features your customers would have to pay up to $364 to add to ordinary air conditioning are *standard* on Chrysler; the best reputation in the industry for quality and dependability; rock-bottom installation and maintenance costs.

More businesses do more business with Chrysler Airtemp —the company that pioneered packaged air conditioning. Want to see how you can cash in? Contact your local Chrysler Airtemp Distributor . . . today!

CHRYSLER
AIRTEMP

Airtemp Division, Chrysler Corporation, Dept. H-59, Dayton 1, Ohio
Canadian Distributor: Therm-O-Rite Products, Ltd., Toronto, Ont.

ARI Expected To OK More Aggressive Program of Activities at Fall Meeting

HOT SPRINGS, Va. — The chances for the adoption of the proposed changes in the activities and organization of the Air-Conditioning & Refrigeration Institute, as put before the membership at the annual meeting here early this month, seem to be favorable, although it is quite possible that there may be considerable modification in the original proposals before final adoption of the new program at a special meeting scheduled to be held in November at the time of the ARI Exposition.

This conclusion is based on an informal check on the closed ARI Section meetings held following the opening general session at which details of the new program were presented, and also upon a sampling of opinion among the membership, it was explained.

The basic elements of the new program were described in a news story on the meeting published in the May 4 issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS.

In substance, the program calls for more aggressive and expanded activity in the "outward" functions of the association—the promulgation and promotion of standards and their certification, promotion of the industry's products, relations with other organizations and the government.

STRENGTHENING OF PRODUCT SECTIONS

Within the institute, the program calls for strengthening of the product sections and their activities.

The exact form of any "industry promotion program" which the ARI, or any segment of it, may undertake, is anybody's guess at the present. The "SMAC" (Sell More Air Conditioning) program thus far has failed to raise the necessary funds for the comprehensive program of promoting air conditioning to the public which it proposed.

SMAC was started as a program independent of any association ties, but it is now generally conceded that if any active program of its nature gets under way, the ARI will have a hand in it.

With the increased emphasis on ARI Section activity, it is quite possible that such promotion efforts might be handled through the Unitary Air Conditioner Section.

Success of the certification (compliance) program on standards for unitary air conditioners has stimulated activity on similar programs for other products (water coolers and mobile air conditioning and refrigeration equipment) and it seems fairly certain that standards and certification programs for other products will be programmed. This certification effort has thus far been self-supporting, through a levy of a fixed fee per unit shipped of all certified equipment.

CONSIDER PLANS TO IMPROVE ARI SHOW

A new Exposition Policy Committee is in the projected plans, with the aim of determining the future course of the ARI Exposition of the Industry, and to make this industry show a better medium for the exposure of the industry's products to the trade and to those elements who have some influence on buying policies, such as consulting engineers and architects.

Within the association, some new projects have been set forth, such as the establishment of uniform accounting procedures and methods. This would also entail the compilation and distribution of composite and financial and operating ratios and related data for companies in the industry, segregated by product sections and net-worth groups.

A major effort will be directed towards a strengthening of the product sections and their activities. It was pointed out at the meeting that some of the activities that these product sections might be undertaking are being carried out by some individual or "splinter" associations.

The Heat Transfer Section, as an example, might encompass some of the activities carried on by heat exchanger or fan coil manufacturing groups.

MANDATORY SECTION MEMBERSHIP PROPOSED

A principal instrument in bolstering product section activities is the proposal to make it mandatory that each ARI member, if eligible for membership in a product section by virtues of producing a product included in the scope of that section, share in the charges allocated to that section.

This provision, and the proposed new method of apportioning dues in ratio to each member's sales volume of products used in the industry, are the most controversial points in the new ARI program.

It is understood that in the closed section meetings, most of the sections endorsed the program, at least "in principle." On the other hand, a number of individual members expressed dissatisfaction with some phases of the proposals.

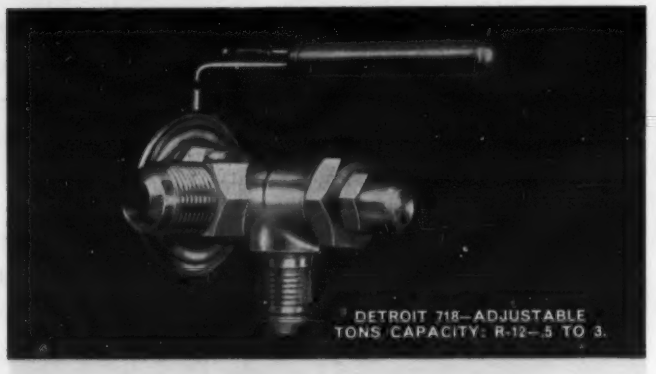
Change of the annual meeting date to the fall was meeting some opposition—in many instances based on individual preference for a May meeting, particularly at the Homestead in Hot Springs.

National To Expand Stainless Tube Plant

ELLWOOD CITY, Pa.—Plans for an expansion program which will nearly double the stainless steel tubing capacity of National Tube Div.'s Ellwood Works were announced by E. G. Price, vice president-operations of this U. S. Steel division.

Price said two new buildings will be erected, adding approximately 40,000 sq. ft. of manufacturing space to the Ellwood plant.

"With addition of these facilities, Ellwood Works will produce high quality stainless steel tubing in a complete range of sizes from ½ to 10¾ in. outside diameter, and in a wide range of stainless steel grades," Price said.



ANOTHER NEW

DETROIT VALVE

FEATURING

COMPACT CAPACITY

Here's a new expansion valve which rounds out the **Compact Capacity** line for Detroit Controls. Tinier, more efficient, it has the ability to stand up to the toughest of operating conditions. Called the 722, it is designed for domestic and small commercial applications—has an adjustable range from 0 to 65 lb. or 10" to 100 lb. It has .5 to 1 ton capacity for R-12 and .8 to 1.6 ton capacity for R-22 and is available with a bleed type seat on special order. See the 722 at your Detroit wholesaler. Also included in the Detroit Compact Capacity line are the 717 and 719 expansion valves which are used primarily for automotive air conditioning. The Detroit 718 expansion valve is used in commercial refrigeration and air conditioning.

BUY FROM YOUR DETROIT WHOLESALER

American-Standard and Standard ® are trademarks of American Radiator & Standard Sanitary Corporation.

AMERICAN-Standard

DETROIT CONTROLS DIVISION

Carrier

AUTOMATIC ICE MACHINE

Certified Capacity

This certifies that this Carrier Model.....Automatic.....
installed at:

.....(NAME OF PLACE)

.....(ADDRESS OF PLACE)

for.....(OWNER OR OPERATOR)

will produce or deliver.....pounds of ice per 24 hours EVEN WHEN OUTSIDE AIR TEMPERATURE IS AS HIGH AS.....°F., AND INLET WATER TEMPERATURE IS AS HIGH AS.....°F. When air and water temperatures are lower, equipment installed is certified to produce or deliver proportionately greater quantities of ice

This certificate is based on the conditions that the machine is properly installed, and regularly and properly cleaned and serviced by an authorized Carrier dealer

CARRIER ICEMAKER DEALER ..... CITY AND STATE .....

ADDRESS ..... TELEPHONE .....

DATE ..... SIGNED .....

26-29M-11-56—COPYRIGHT 1955 CARRIER CORPORATION, SYRACUSE, N.Y.

ONLY CARRIER OFFERS ICEMAKERS WITH CERTIFIED CAPACITY

There are 16 Carrier Icemakers to give your prospects exactly the kind of ice they need. You can stand behind the amount of ice they'll expect, too, because every Carrier Icemaker comes with capacity certified in writing.

There are no "up to" qualifications. There are no "average" production figures. Capacity is determined according to air and water temperatures where customers are.

You can show how prospects save as much as 80% on ice with a Carrier Icemaker. The exact figures—and a lot of other trustworthy facts—put Carrier Icemaking Equipment dealers at the head of the field. If you'd like complete data, write Carrier Corporation, Syracuse 1, New York.

Carrier AIR CONDITIONING · REFRIGERATION

At Lennox Luncheon

Air Conditioning User Forum Finds Many Housewives Enthusiastic About Benefits

By George M. Hanning

NEW YORK CITY—A newborn babe sold his mother on residential air conditioning.

The mother was one of 17 housewives from air conditioned homes in the suburbs around New York City who attended the third annual Lennox Women's Conference here.

She testified that the air conditioned delivery room and air conditioned nursery at the hospital, plus her doctor's recommendation that an air conditioned home would be good for her baby, prompted her to buy it.

She's happy that she did.

The women, all from homes air conditioned by Lennox, were invited by John Norris, president of Lennox Industries, Inc. to a luncheon at the Hampshire House hotel here to tell him what they liked and did not like about their air conditioned homes.

A few offered complaints, several praised their installing and servicing dealer, and all could cite numerous benefits they received from air conditioning even though some said "you don't need air conditioning in Connecticut" (or New Jersey).

All had their units for a year or more. All had decided from national advertising, articles on air conditioning in the public press, or from personal recommendation (such as the mother mentioned above) that they wanted air conditioning and went out and bought it. None had been approached by a salesman.

Architect Picks Brand

One woman said she left selection of the brand up to her architect. Another said a dealer's salesman had given her an effective presentation on adding air conditioning but that she had already decided to do so before the representative arrived.

Benefits cited for air conditioning were many. Here are some of the more unusual ones.

One lady affirmed that air conditioning helped her in her gardening. Gardening is her hobby and requires unrelenting, exhausting work on hot days. With air conditioning, she said, she is assured of a good night's sleep so that she can start the next day's work refreshed.

It gives her more time to spend on gardening, too. Now, she can swish a dust cloth through her house in the morning and it will still look nice at dinner time.

A Scarsdale, N. Y. housewife related that she splurged on white drapes after air conditioning her home. A year later they still were not dirty, she said.

She found that she does not need slip covers for her furniture in the summer. With air conditioning, the furniture remains comfortable to sit upon and she does not fear fading from the sun.

Another woman commented that she no longer does spring and fall house cleaning. With air conditioning, she does it once a year—in the summer. She can do it more leisurely that way and be more comfortable.

A New Jersey housewife reported that her family now barbecues out of doors, but brings the food into the house to eat—avoiding, she says, wind, dust, and mosquitoes. Several women said they now have indoor barbecues.

He Likes It Hot, But Cool Home Is A Joy

One woman said she hesitated to buy air conditioning because her husband liked it hot. He could see no need for it. She was afraid he would feel chilled in an air conditioned house.

But, after air conditioning was purchased, he considered it a joy after selling outside all day and now brings his friends in for beer.

Two of the women said they bought their air conditioning for health reasons. Either they or some one in their families suffered from asthma or hay fever. The relief they got from air conditioning was striking, they testified.

One said that last summer was the first time she had not spent the summer propped up on pillows on the living room couch. The other related that her son, suffering from an allergy came home frighteningly sick and unable to breathe late one night. With no other medication than sleeping in an air conditioned room, he felt completely recovered in the morning.

One woman had a problem she submitted to Norris for judgment. On comfortably cool days, her husband would shut off the air conditioning to save expense. She argued that it would be better to leave the thermostat set at a particular temperature and not touch the control. Who was right?

Norris tactfully refused to interfere in a family argument. He pointed out that it was a matter of what you wanted rather than of cost. But, he noted, keeping the unit running reduced humidity that would be soaked up by furnishings. And, by keeping doors and windows closed, it kept airborne dirt out.

Plugs For Qualified Dealer

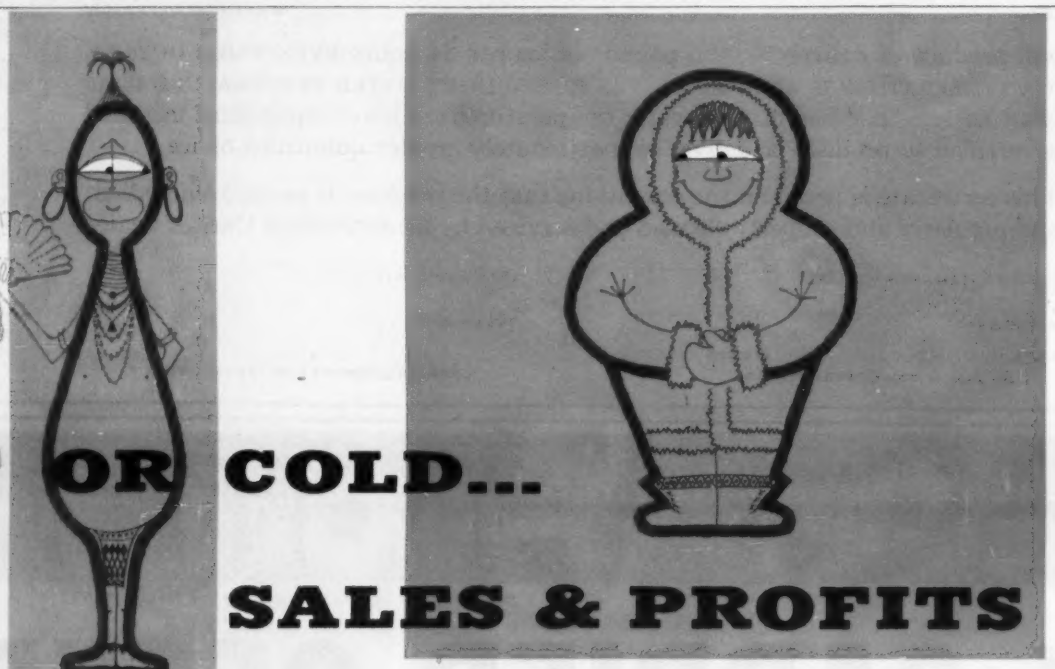
One Scarsdale, N. Y. woman commented that she and her husband looked for over a year, before selecting a dealer to air condition their 12-year-old home.

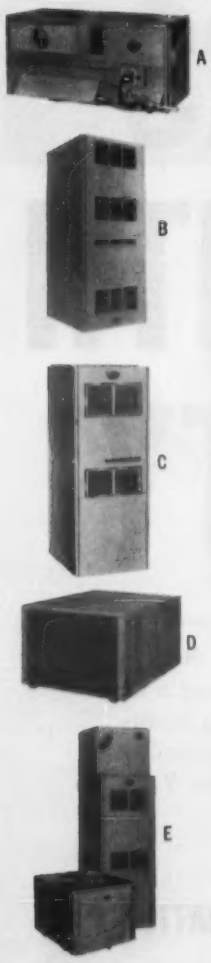
"It took us that long to find someone qualified to make the installation," she asserted. "Plumbers may be good in their field, but some of the things they told us about air conditioning were fantastic.

"I believe only qualified dealers should represent themselves as air conditioning dealers."

She also suggested that it was "an error in judgment" to sell a heating system with provision to add cooling later. It is better, she felt, to have both installed at the same time.

Major complaint expressed





ARE YOURS *with Gaffers & Sattler Furnaces & Air Conditioners*

A. Horizontal Forced Air Furnaces 80-100-120-140,000 BTU. Also available equipped for air conditioning.

B. Counterflow Forced Air Furnaces 80-105-120-140-160,000 BTU. Also available equipped for air conditioning.

C. Upright Forced Air Furnaces Featuring Diamondglas Heat Exchanger 80-100-120-140-160-200,000 BTU. Other upright models, 47-60-70-75*-80*-86*-90-100*-120,000 BTU* (*also available for air conditioning).

D. Self Contained Refrigerated Air Conditioners 3 ton model, includes evaporator and condensing unit.

E. Remote Air Cooled Air Conditioner 2-3-4-5 ton models, fully charged, with precharge refrigerant tubing.

There's never "a slack season" with Gaffers & Sattler Furnaces and Air Conditioners. They've all the exciting features your customers will demand...selling features that pay off in your order book.

So, when it's hot as a Zulu's hut...or cold as an Eskimo's igloo, the complete line of Gaffers & Sattler Furnaces and Air Conditioners will make profits rise. They're easy to install...right for every type of installation...and they're backed by over 33 years of manufacturing experience. Every Gaffers & Sattler comfort appliance is quality controlled...is thoroughly tested in our research and development laboratories to assure the highest standards of operation and service.

Contact your jobber or write today to:
GAFFERS & SATTLER, 12611 So. Crenshaw Blvd., Hawthorne, California.
Manufacturers of Gaffers & Sattler Air Coolers, Automatic Gas Ranges, Furnaces, Air Conditioners and Water Heaters

GAFFERS & SATTLER
A PRODUCT OF
UTILITY
APPLIANCE CORP.

was about undersized equipment. Two of the women particularly did not agree that 10° below outside temperature was satisfactory. They insisted that they wanted 72 to 74° F. inside no matter what the outside temperature might be.

One Hillside, N. J. housewife complained that she had purchased air conditioning, but wasn't getting it. She has a 3-ton water-cooled unit for a four-bedroom split level house.

It's fine in mild weather, she said. When the temperature is 75° F. outside, it will bring it down to 72° without any trouble.

The unit runs constantly, she added, and her water bill for three months was $60 to $70.

"I use the air conditioning water to sprinkle my lawn," she said. "When I finish that, I sprinkle my neighbors' lawns."

She pointed out that the air conditioning salesman sized the load on the basis of members of the family plus two. This is sadly inadequate, she said. When guests are in the house, she has to open windows to be comfortable.

Children Have Friends, Too

"My children have friends, too," she added. "When children are in the recreation room, they can be kept cool only at the expense of the rest of the house."

After hearing out her problem, Norris assured her that a factory engineer would check over her home and make recommendations for correction. He turned the problem over to H. G. Krayenhoff, general manager of Lennox' Syracuse Div., who sat in on the meeting.

Another woman from New Jersey declared that her installing dealer—Stengel Bros. of Hillside, N. J. — came out three days a week, adjusting the balance of the system just slightly each time until he had it working perfectly.

She had high praise for him for taking time to make sure the installation was right and for backing it up with service—even to working on Saturdays.

Another complaint by two women was not directed at the air conditioning but at their gas ranges. Both said that the men installing the range said that it did not need to be vented.

"My new range has just ruined my air conditioning," one woman wailed. "My kitchen is unbearable winter and summer."

Compressor Noise Problem

One housewife brought up the problem that her neighbor complained — mildly — about compressor noise at night. She had an air-cooled compressor on the side of the house facing this neighbor's bedroom.

The neighbor said that the noise itself wouldn't be so bad if the compressor ran all the time. But the cutting in and out bothered her.

Another woman at the conference broke in to say that she solved a similar problem by planting shrubbery around the condensing unit. Norris suggested that new types of acoustical material could relieve her trouble.

More detailed comments in the words of the participants themselves will appear in a later issue of the NEWS.

Revised NWAHACA Manual 11 Tells How To Determine Value of Roof Overhang

CLEVELAND — How to quickly and accurately determine the value of roof overhang is embodied in a revised issue of the National Warm Air Heating & Air Conditioning Association's Manual 11, entitled "Heat Gain Calculation and System Design for Summer Air Conditioning," NWAHACA announced.

Explaining that all the material in the authoritative booklet, that sells for $1.25, can be applied to new or existing residences, Association Managing Director George Boeddener said:

"This new Fourth Edition has been expanded to include the best data experience available as of December, 1958. It represents scientific inquiry conducted by the association at the University of Illinois and the consolidated knowledge and experience of the association's members."

By utilizing the manual, it was pointed out, "architects and builders can predetermine the most advantageous orientation of the house and how wide the overhang design should be for maximum results. These maximum results mean the proper—smallest—central cooling system necessary to bring comfort into the home during the hot, muggy months."

"Because," Boeddener said, "there is little opportunity, except in country areas, to properly orient the house, other methods can be used to reduce the heat gains from the sun."

One of these is roof overhang. Manual 11 describes how to determine the effect of the sun on the shaded and unshaded glass areas beneath the overhang.

By entering such measurements as the direction the wall faces and the width of the overhang, the shade line factor is determined from a new table developed by the Technical Dept. of the association.

Six additional items of information are entered on the work sheet and in a brief period of time the exact heat gain effect has been determined.

Chicago Dealer Names 4 To Sell Home Units

CHICAGO—Heating & Cooling Products Co., exclusive outlet in the Chicago area for "RCA Whirlpool" central home air conditioners, announced that it has appointed four new salesmen for four different sections of the city to sell the central units only.

Evan Stein will service accounts in the north and northwest part of Chicago; Victor Sklair will work in the western part of the city; Ronald Hillman will work in the south and southwest; and Ronald Ispray will cover the southeast.

All four men will contact new home builders, architects, sheet metal workers, heating and cooling contractors, remodeling contractors, and others who install central home air conditioning units.

Penn's service-proved controls

DO MORE JOBS WITH LESS INVENTORY

Here's a simplified line of single and two pole controls that reduces your inventory yet has the capacity to give you more flexibility in meeting all refrigeration and air conditioning requirements. Features include exclusive SNAPFLEX self-cleaning contact action and IN-LINE power unit which holds settings accurately.

In addition, the two pole heavy duty controls eliminate the need for motor starters when used on polyphase motors with built-in overload protectors. It's another plus economy feature! For complete information, ask your wholesaler then . . .

Try Penn on your next job!

Series 270 single pole and Series 1272 two pole single function for either low or high pressure. Also temperature models.

ELECTRICAL RATING...1 PHASE*

270 SERIES		1272 SERIES	
115-V.	230-V.	115-V.	230-V.
16 Amps.	10 Amps.	24 Amps.	24 Amps.

*See Penn Catalog for polyphase ratings.

Series 271 single pole and Series 1273 two pole dual function. Temperature models also available.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

THE G-E MOTOR STORY: SERVICE +

YOU GET FAST SAMPLE SERVICE

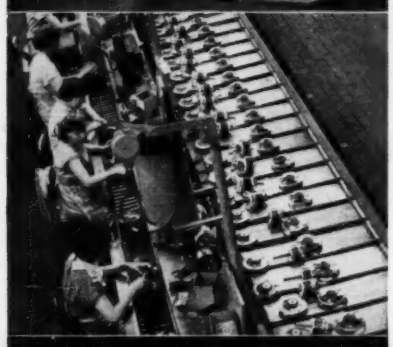
EXPERT APPLICATION ENGINEERING

AND PROMPT DELIVERY

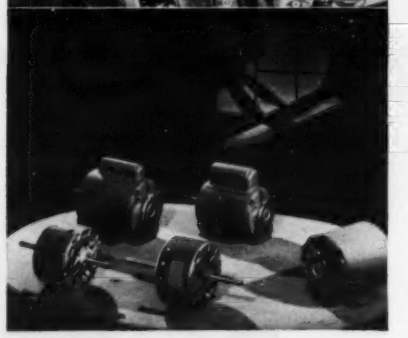
ON A COMPLETE LINE OF PROVED FHP MOTORS

G-E ENGINEERS will help you tailor a Form G motor to meet your performance requirements . . . and provide the fast sample service you need to finalize the design and tooling of new models.

APPLICATION HELP from G-E engineers—specialists in air-conditioning motors—assures you of the best motor for your product commensurate with your specific performance requirements.



GENERAL ELECTRIC'S manufacturing capacity and multi-plant flexibility are geared for fast deliveries of volume orders. This assures you of constant availability of the motors you need.

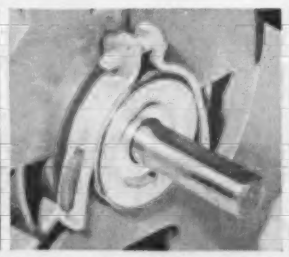


THE RIGHT MOTOR is available from General Electric *now.* The motors at left are typical of the complete line of years ahead G-E motors designed specifically for your air-conditioning requirements.

WITH THESE EXTRA-VALUE FEATURES THAT CUT INSTALLATION . . . INVENTORY . . . SERVICE COSTS

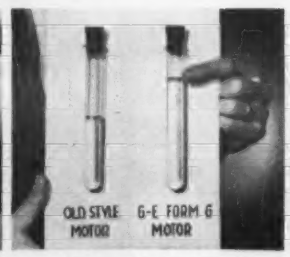
QUICK CONNECT TERMINALS make wiring Form G motors easy and quick. Enlarged opening also saves hook-up time.

PLUG-IN TERMINALS on outside of G-E Type KSP and KCP 39-diameter motors permit fast, easy connection of motor leads.

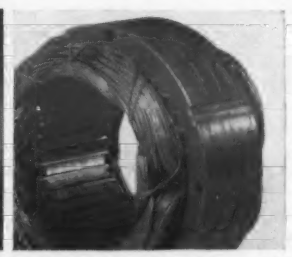


NEW! PROTECTIVE FINISH. Special shaft treatment minimizes corrosion, thus simplifying removal of fans, pulleys and couplings.

NEW! QUIET, SURE SWITCH. Special washer cushions switch click, maintains positive snap action under heaviest demands.



LONG LUBRICATION LIFE. Large oil supply and superb retention system cut maintenance—eliminates reoiling in many cases.



LONG-LIFE STATOR—Mylar* polyester film, Formex† wire, heavy-duty bonding dip resists heat, moisture, and electrical stresses.

These General Electric Form G motor benefits will help keep your new design program on schedule, and improve your product as well. If you'd like help on a specific problem contact your nearby General Electric Apparatus Sales Office. For more information on Form G motors write for bulletins GEA-6424 and GEA-6533, to General Electric Company, Section 702-98, Schenectady 5, New York.

* Reg. trademark, DuPont Co.

† Reg. trademark, General Electric Co.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Bryant Training School Students Hear About Gas Absorption Cooling Unit

By Frank J. Versagi

INDIANAPOLIS — "Gas absorption cooling is about where gas heating was 20 years ago—it's good; it will do the job—but it must be sold to the public."

This evaluation from Clinton Weimann, Laclede Gas Co., St. Louis, one of 15 enthusiastic utility students at a recent Bryant Mfg. Co. training school on its new air-cooled absorption air conditioner.

With a 3-ton unit already in production and a 5-ton system scheduled for next year, Bryant confidently predicts that its gas-fired ammonia absorption units will make a significant impact on residential and small commercial markets.

And the confidence of Bryant instructors Charles Eskew and Leonard Hall very obviously diffused through the alert class of utility and distributor principals attended by the NEWS technical editor.

"The typical compressor falls off in efficiency as it ages; pistons wear, it becomes noisy," commented Robert T. Moran, Protane Corp., St. Petersburg, Fla. "Designed for a 10-year life of continuous operation, a reciprocating compressor has a practical start-and-stop life of about seven years."

"An absorption unit like Bryant's should last several times that long," estimated Eskew, "since there are no moving parts except a half dozen controls and valves. There certainly will be no significant difficulties with the tubes and tanks which comprise the major portion of the unit."

Few 'Possible Problems' Which Might Occur

Eskew briefly enumerated a few "possible problems" which might occur: solenoid coils or pistons might need to be replaced; in the float chamber, the ball might develop a leak; a microswitch could become inoperative.

Commenting on such possibilities, Len Hall emphasized that their occurrence is problematical. "Controls and solenoids have been tested through as many as 5 million cycles—and one million cycles approximate 5 years of operation. Components were removed every half million cycles and micrometer measurements made, in some cases, to determine any wear."

Basically, the Bryant unit uses a gas flame to generate a cooling cycle during which ammonia refrigerates water in a chiller; the water is pumped through an A-coil in a typical up-flow or down-flow furnace installation, an S-coil in an attic furnace installation, or a blower coil "unit cooler."

The entire air-cooled absorption unit is placed outdoors, and the chiller is normally connected to the coil with polyethylene tubing. Since only water pump and fan motor need electricity, 115-volt service is adequate, obviating the need for any new power service entrance.

(A detailed description of the absorption system and operational characteristics of Bryant's unit will appear as part of a series on absorption refrigeration in forthcoming issues of the NEWS.)

Installation is simple and relatively inexpensive, according to Bryant, and operating costs of the gas-fired unit are competitive with electrically operated cooling equipment when gas rates per therm are three times the electrical rate. Thus if power is available at 2.5 per kwh, gas would still be competitive at over 7 cents per therm. (A therm is 100,000 B.t.u. input.)

"There is nothing hazardous about ammonia from the flammability aspect," reported Eskew. "You can actually weld with ammonia in the lines. Normal precautions, such as are used with all refrigerants are necessary to prevent skin irritation or damage to the eyes."

If a leak occurs above what Bryant terms the "liquid level" of its system, ammonia vapor will escape harmlessly to the atmosphere. (The Bryant unit operates under positive pressure at all times, never under vacuum.) As one result of this fact, solenoid valves, which are placed above the liquid level, can be serviced merely by purging vapor from the unit, replacing the coil or piston, and starting up again.

Entrapped Air Can Be Purged In Few Minutes

Any entrapped air can be purged in a few minutes, but a little air does not affect operation. In a controlled test with non-condensables, Bryant determined that the unit performed satisfactorily with as much as 2,300 cc. of hydrogen in the lines, "much more than can conceivably occur in the field."

If a leak occurs below the liquid level, it is easily located by the yellow stains due to the chemical inhibitor used in the system solution.

Burner protection prevents any carbon monoxide danger. Should any monoxide form under extremely unusual conditions, the outside location of the unit renders it harmless—especially in view of the fact that it will be mixed with the 4,500 c.f.m. of air being moved by the fan.

"No sooting problem has occured anywhere in the country," commented J. A. Mekel, technical service and application manager, who pointed out that the troubles ironed out after field testing of 75 units had to do with component parts like solenoid valves and water pumps, not with operational characteristics.

"Plus the usual installation errors due to careless reading of manufacturer's carefully prepared instructions," Mekel added ruefully.

Acme Declares Dividend

JACKSON, Mich.—The board of directors of Acme Industries, Inc. declared a regular quarterly dividend of 5 cents per share on common stock outstanding, payable May 25 to shareholders of record May 11.

THE "BRAIN" THAT DOESN'T GIVE TUBING A "BREAK"
MAGNATEST
ELECTRONIC TESTING EQUIPMENT
MAGNAFLUX CORPORATION
FW-400
This is Viking's Newest "Brain"!
It is another unique application of electronic technology in Viking's modern specialized plant . . . making certain that Viking thin-wall copper tubing is absolutely free of breaks, pinholes, or other imperfections.
The "Brain" not only seeks out the minutest defect in the wall of tubing passing through its field of sensitivity, but automatically marks faulty spots and discards the tubing so it cannot be used.
The electronic "Brain" is typical of many advanced procedures employed in the manufacture of Viking copper tubing to assure users trouble-free fabrication and perfect performance.
It is through these quality controls that Viking has become the principal source of thin-wall tubing for America's leading manufacturers of air conditioning and refrigeration units and coils.
VIKING
COPPER TUBE CO.
CLEVELAND 10, OHIO
PRECISION DRAWN SEAMLESS COPPER TUBE

ULTRA-SORB DRYING AGENT IS BETTER
three ways:
1. More Soak-Up Power
It can adsorb more moisture, more acids and salts, than low-priced, less effective materials normally used.
2. Holds Up Under Heat
High capacity at extreme temperatures, when other drying agents release moisture back into the system.
3. Minimum Pressure Drop
Ultra-Sorb drying agent is in the form of clean, hard beads—does not break down to restrict refrigerant flow.

Frigidaire Ultra-Sorb Thuro-Driers
with molecular sieve desiccant
lick moisture problems—once and for all!

Why risk faulty operation and costly callbacks due to inadequate dehydration of refrigerant systems? It's so unnecessary—when you can easily remove harmful moisture with Frigidaire Ultra-Sorb Thuro-Driers. Most important, the system *stays* dry, even when the Thuro-Drier is installed in hot motor compartments. Ultra-Sorb Thuro-Driers are a cinch to use—in the shop or on the job. And there's a size just right for every application, from household refrigerators and other sealed capillary systems to multi-ton air conditioning installations. A complete line from one source meets all your dehydrator needs.

Get a supply now, in the sizes you use most, from the nearest Frigidaire District Office listed on the next page.

Solderless, flare, and sweat fittings

For capillary systems

⅛ to 20 H.P. capacities

FRIGIDAIRE
Golden Rule Service

FREE! **Valuable Information! Improved Procedures for Cleaning and Dehydrating Refrigeration Systems**

Get this 12-page illustrated booklet describing effective new procedures for dehydrating sealed and open type systems, in the shop and on the job. Write Frigidaire, Service Department, 1097, Dayton 1, Ohio.

Matching Frigidaire Refrigerant Control Valves

Expansion and cooling unit control valves to assure finest performance of any refrigeration system.

The right part at the right time— installed right the first time— thanks to tuition-free Frigidaire SERVICE TRAINING!

For information on parts, training, or any phase of Frigidaire Golden Rule Service, call or write:

FRIGIDAIRE SALES CORPORATION OFFICES

ATLANTA, GA.
2995 E. Ponce de Leon Ave.
Decatur, Ga.

BALTIMORE-WASHINGTON
2315 Cecil Ave., Baltimore 18, Md.

BOSTON 15, MASS.
25 Blandford St.

BUFFALO 2, N. Y.
1018 Main St.

CHARLOTTE 1, N. C.
P. O. Box 1192

CHICAGO 51, ILL.
1200 N. Homan Ave.

CLEVELAND 14, OHIO
1729 E. 22nd St.

DAYTON 19, OHIO
P. O. Box 597, Far Hills Station

DENVER 4, COLO.
215 Wazee Market

DETROIT 28, MICH.
13940 Tireman Ave.

FORT WORTH 7, TEXAS
P. O. Box 9847

KANSAS CITY 16, MO.
1534 Burlington St.
North Kansas City

LOS ANGELES 58, CALIF.
P. O. Box 58314, Vernon Branch

MINNEAPOLIS-ST. PAUL, MINN.
2331 University Ave., S. E.
Minneapolis 14, Minn.

NEW ORLEANS 19, LA.
4141 Bienville St.

NEW YORK 19, N. Y.
1775 Broadway

OAKLAND 8, CALIF.
1250 53rd St.

PHILADELPHIA 24, PA.
500 E. Hunting Park Ave.

PITTSBURGH 6, PA.
248-50 S. Euclid Ave.

PORTLAND 9, ORE.
1035 N. W. 14th Ave.

ST. LOUIS 8, MO.
482 N. Kingshighway Blvd.

FRIGIDAIRE DISTRIBUTORS

EL PASO, TEXAS
W. G. Walz Co.
500 San Francisco St.

HAGERSTOWN, MD.
Potomac Edison Company
55 E. Washington St.

HOUSTON 2, TEXAS
Cox & Blackburn, Inc.
2301 Commerce Ave.

INDIANAPOLIS 2, IND.
Refrigerating Equipment Co.
900 N. Senate Ave.

LOUISVILLE 1, KY.
Smith Distributing Co.
P. O. Box 1495

MEMPHIS 3, TENN.
McGregor's Inc.
1071 Union Ave.

MIAMI 36, FLA.
Domestic Refrigeration Co., Inc.
134 N. W. Third Ave.

OMAHA 8, NEB.
Major Appliance Co.
1101 Jackson St.

ROCHESTER 4, N. Y.
Chapin-Owen Co., Inc.
205 St. Paul St.

SALT LAKE CITY 11, UTAH
W. H. Bintz Co.
P. O. Box 1350

SAN ANTONIO 6, TEXAS
Straus-Frank Co.
P. O. Box 600

SIOUX CITY 2, IOWA
D. K. Baxter Co.
P. O. Box 1707

SPOKANE 1, WASH.
Sunset Electric Co.
North 703 Division St.

SYRACUSE 1, N. Y.
Onondaga Supply Co., Inc.
344 West Genesee St.

TAMPA 2, FLA.
Byars-Forgy, Inc.
105 Twiggs St.

TORONTO, CANADA
Frigidaire Products of Canada, Ltd.
1901 Eglinton Avenue, E.
Scarborough, Ont., Can.

GM
FRIGIDAIRE
Backed by General Motors
Frigidaire Service Department
Dayton 1, Ohio

Sees Growing Use of Sodium Molybdate As Rust Inhibitor In Recirculating System

NEW YORK CITY—Use of sodium molybdate as a corrosion inhibitor in aqueous recirculating systems may find widespread commercial adoption as a result of a development by Climax Molybdenum Co., a division of American Metal Climax, Inc., the firm announced.

Application of sodium molybdate in combination with orthophosphate "now makes it possible to reap sodium molybdate's advantages at a much lower cost than when used alone," the announcement said.

Details of this development were reported in a paper presented by Dr. George W. Lewis of Climax' Detroit Laboratories at the 15th annual conference of the National Association of Corrosion Engineers in Chicago recently.

"Sodium molybdate has been known for some time to be an effective corrosion inhibitor which offers the benefits of being relatively non-toxic and colorless," according to the announcement. "But up until now its cost has been a limiting factor.

"In an extensive program which commenced in 1955, Climax found that by incorporating orthophosphate, much smaller quantities of sodium molybdate can be used.

"At the same time, equally effective inhibitive properties are obtained.

"This development is expected to find particularly wide acceptance in equipment where toxic materials can not be used—refrigeration systems for foodstuffs, for example. Other promising areas of application include cooling towers and jackets, recirculating hot water systems, boilers, anti-freeze compositions, and air conditioning systems.

"Extensive tests were conducted in determining the effectiveness of sodium molybdate-orthophosphate inhibitor. Specially prepared specimens of cast iron, 1020 steel, and Muntz metal brass were immersed in solutions containing varying concentrations of sodium molybdate alone, sodium molybdate plus orthophosphate, and sodium molybdate - hexametaphosphate.

"Extent of corrosion was then measured by weight-loss, photographic, and corrosion current data.

"The molybdate - orthophosphate combination proved most satisfactory, providing complete inhibition of rusting in tests lasting up to 69 days."

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

2 Groups In Plastics Field Join Forces

NEW YORK CITY — The Vinyl-Metal Laminators Institute announced that it has joined forces with The Society of the Plastics Industry, Inc.

The institute, which has been in existence for two years and consists of seven companies which laminate vinyl film and sheeting to metal, will function as a division of SPI.

This new area of the plastics industry is finding growing markets for its products in such applications as air conditioners, water coolers, and refrigerators, among others, it was pointed out.

The Vinyl-Metal Laminators Institute has already prepared specifications for vinyl-metal laminates produced by its members and is working on additional specifications.

Also, consideration is being given to commercial standards as promulgated under the standards procedures of the U. S. Dept. of Commerce.

For Contractors

New PHCIB Sales Training Course Gets First Trial Run in Dubuque

DUBUQUE, Iowa — The Plumbing-Heating-Cooling Information Bureau's sales training program got under way recently as the first class of plumbing and heating contractors sat down to the first session.

Twenty-one contractors from the Dubuque marketing area are taking the ten 3-hour class sessions over a 20-week period.

Wholesalers' salesmen in the area are also receiving instruction so they can work individually with the contractors on specific class assignments in the two-week period between sessions.

A feeling of the importance of this program to the entire industry was put into words by the PHCIB's president, Howard L. Spindler, vice president of public relations for American Radiator & Standard Sanitary Corp.

"We are here today as pioneers in the development of a training program that will be used as a guide for increasing selling effectiveness throughout our industry," Spindler said.

As the Dubuque training program progresses and is completed, a practical pattern for sales training that any community could use as a guide for similar instruction will result, it was stated.

Spindler noted that not only are the first students being guided by industry authorities in training and sales education —the PHCIB's Sales Training Council—"but you will have the assistance of the Management Institute at the University of Wisconsin, whose Business Institute director, James Lichty, will be your chief instructor."

The entire course is based on research conducted by the bureau's Sales Training Council, which retained a professional market research agency to observe the Dubuque contractors' present selling practices. The program's content is based on those findings as interpreted by the council.

The council made the initial training phase "simple and realistic."

"The program has been designed to meet the research findings, to be practical and easy to fit into your present methods of operation, and to produce results you can measure," Norman Wicks, PHCIB executive director, told the students. "It will require no expensive promotion, nor will it place an extra burden on your installation force."

At the end of the Dubuque pilot course, the council will prepare teaching aids for training those who will instruct courses in other cities. The course will then be ready for use throughout the country.

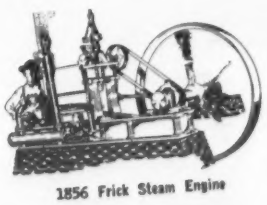
List Dates of 1960-62 Hotel Expositions

NEW YORK CITY—In a joint announcement by William B. Rasor, president, Hotel Association of New York City, Inc., and Thomas A. Dandrew, president, New York State Hotel Association, Inc., the dates of the 45th, 46th, and 47th editions of the National Hotel Exposition were listed.

In 1960, the Hotel Show will be held Nov. 14-18; the 1961 Hotel Show will be held Nov. 6-10; and the 1962 Hotel Show will be held Nov. 12-16, all in the New York City Coliseum.

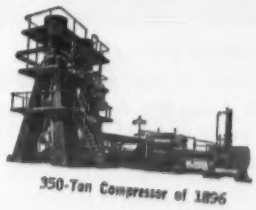
Century Office Moves

ST. LOUIS—Century Electric Co.'s Chicago branch office has moved to new quarters at 6835 W. Higgins Rd., Chicago 31. Telephone number is Spring 4-6969.



1856 Frick Steam Engine

TRADE FRICK MARK®



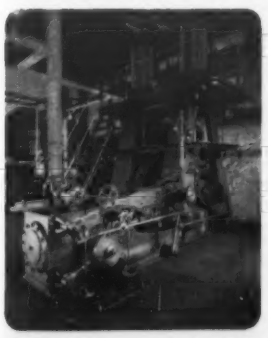
350-Ton Compressor of 1896

ONE NAME...

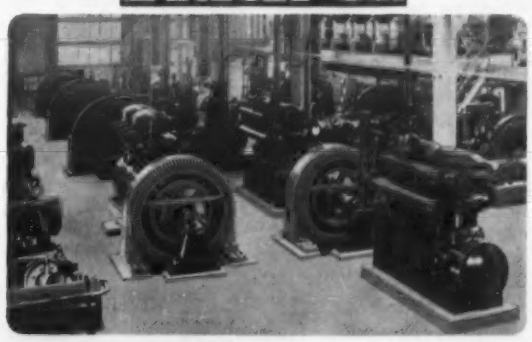
One Independent Company, One Standard of Excellence Since 1853

We're decidedly in business at the old stand . . . under the same experienced management as heretofore . . . and welcome the chance to serve both old and new customers. Let us quote on your air conditioning, refrigerating or ice-making needs: write . . . FRICK COMPANY, Waynesboro, Pennsylvania.

WAYNESBORO, PENNA. U.S.A. **FRICK CO.**



Steam-driven compressor installed in 1887 at Gipps Brewery, Peoria, Ill. In service 60 years.



The Celanese Corp. uses 10,000 tons of refrigeration in its plant near Cumberland, Md. Here Frick heavy-duty compressors have operated 30 years.

"ECLIPSE" compressors with 2, 3, 4, 6 or 9 cylinders, handle any refrigerant, at any temperature, on any load.

Air Conditioning System Expected To Improve Centuries-Old Process: Salt-Curing of Hides

FORT WORTH, Texas — A new wrinkle has been added to a manufacturing process that had remained basically unchanged since prehistoric times.

Air conditioning is now being used to help control the curing of cow hides in the new plant of Delph-Nortex Hide Co., Inc. here. This is believed to be the first such application of air conditioning in the world.

Six 10-ton General Electric ceiling type coil units powered by remote air-cooled condensing units are suspended over the brine vats in the Delph-Nortex building.

The system was engineered and installed by R. S. Phillips of Phillips Engineering Co., G-E dealership in Fort Worth.

Chief purpose of the air conditioning is to hold an even 70° F. temperature although prevention of high humidity is also important, explains J. T. Bumgardner, plant manager.

Expect To Save $600 Monthly

"We expect to save $600 a month with this air conditioning system," he adds.

Air conditioning is expected to prevent or minimize "salt burn" and bacteria growth, both of which can damage hides and thus greatly reduce their value for leather goods.

If, after curing, the hides are bundled during high humidity conditions, they may start "sweating" later, and this moisture can damage the hides also. This problem should be avoided by the air conditioning units' holding humidity at a comparatively low level.

Curing room at the Delph-Nortex plant measures 210 by 140 by 10½ ft. and contains 35 vats each 20 by 20 by 3½ ft. deep. These can hold a total of 50 to 60 carloads of hides.

Process of curing the "green" hides requires them to be placed in the vats in rock salt. Alternate layers of hides and salt are built up to almost the very top of the vats. Then a heavily concentrated brine solution is pumped into the vats to make certain that salt touches every part of each hide.

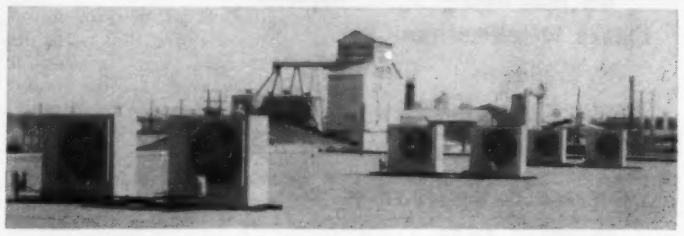
The curing process requires three to four weeks.

Experiments to reduce the hide curing time are in process, but to date salt curing is still the most satisfactory method in terms of results, just as it has been since time immemorial, according to Bumgardner.

Despite salt curing of hides being such an ancient art, there were no guideposts for calculating the heat gain and air conditioning load, so Phillips, who heads the contracting firm, had to use a lot of imagination.

He figured the hides would be brought in at a temperature of about 90° F. Additional insulation in the ceiling was also advised by Phillips, who calculated 12 tons could be cut from the load this way.

CONTROL setting for one of six 10-ton G-E air conditioning units cooling hide vats in Fort Worth plant is checked by contractor R. S. Phillips.



AIR-COOLED condensing units serving curing room of Delph-Nortex Hide Co. in Fort Worth are located on roof above fan-coil units.

* * *

Each of 10-Ton Units Has Own Controls

Each of the six 10-ton units has its own controls. Control panel mounted on the pillar nearest each unit permits management to turn the unit on or off, operate the blower only, or throw it onto thermostatic control.

The six air-cooled condensing units serving the ceiling fan-coil units are installed on the roof directly above.

No provision is made for heating the curing room because of the heat given off by the hides in the brine vats during the curing process.

(A separate year-round system installed by another firm serves the offices in the front of the building.)

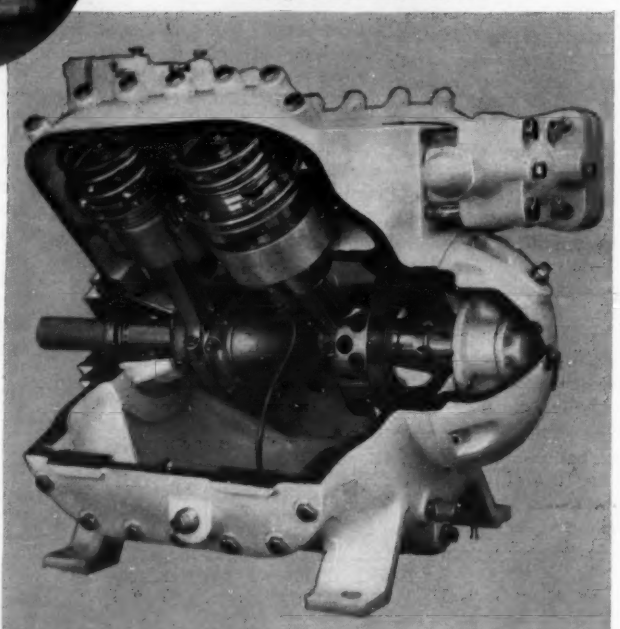
One problem with the air conditioning units that is anticipated by both plant management and the contractor is excessive corrosion. With the units installed directly over the brine vats in the curing room, the air surrounding and passing through the fan-coil units is likely to contain a heavy concentration of salt.

How long the units will operate before major repairs become necessary is not known at this time.

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

quiet *vibrationless*

...A NEW COMPRESSOR TO MEET TODAY'S REQUIREMENTS

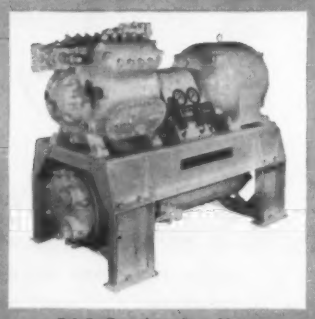


B&G Compressors are *not* adaptations of designs originated 20 years ago—they are completely new in conception, engineered to establish higher standards of performance. Foremost of their many features is quiet, vibrationless operation—and here B&G Compressors have no equal.

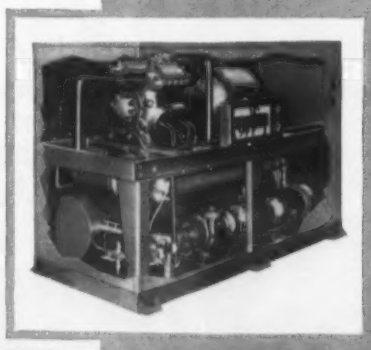
This is concrete evidence of quality! It indicates the precision manufacture of a basically superior design. B&G Compressors have fewer parts, present fewer maintenance problems. All units have *one* bore diameter—a few interchangeable parts will service them all.

B&G Compressors can be equipped with multi-step capacity control systems. Standard equipment includes gas and oil equalization ports, magnetic plugs and oil sight glass.

All these things add up to greater efficiency—greater value per dollar. Remember, too, that all major parts of B&G "package" units are made and guaranteed by Bell & Gossett Company.



B&G Condensing Unit
An achievement in compact efficiency, featuring interchangeable vital parts. 7½ through 150 tons.



B&G Package Liquid Cooler
Completely integrated and assembled. Everything included, no extras to buy. 7½ through 150 tons.

Send for complete file of specifications and application data on B&G Air Conditioning and Refrigeration equipment.

A COMPLETE LINE OF REFRIGERATION AND AIR CONDITIONING COMPONENTS

BELL & GOSSETT
COMPANY
Dept. FS-47, Morton Grove, Illinois
Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

Making Money Out of Service Dept.

Effective Supervision, Record Keeping, Training Programs, and Communications Vital To Success

PEBBLE BEACH, Calif. — Some pointers on "How To Make Money Out of Your Service Department" were offered recently by A. L. Hanson of National Refrigeration Mfg., Inc.

"Effective supervision is necessary," he said in a talk during the second annual convention of the Refrigeration & Air Conditioning Contractors Association of Northern California.

"The service manager must know his business technically, he must know accounting, he must work with office people.

"Cost control is necessary—the details of each man's time, the materials on his truck,and the cost of those materials. He must have a record of all administrative expense, including telephone calls.

Radio Dispatch System Had Not Cut Phone Bill

"We use the radio dispatch system at National Refrigeration Sales in Los Angeles," Hanson said. "Yet after installing it, our analysis for the last three months showed our telephone bill had not gone down.

"A check showed this was due to collect calls from servicemen in the field. The same check showed $400 a month in collect calls from servicemen.

"Consequently we asked the switchboard to keep a record of where the calls were from, who was calling, and to request the telephone company operator to give us time and charges when the call had been completed.

"After this system had been installed our collect call expense dropped down. We only had calls from beyond the range of the radio system. We got results because we called the men together and worked out the details for telephone and radio call-ins.

"We noted a lack of record-keeping for call-backs. The men had not put down the original job number and other details necessary to audit the call-back.

"Conditions like this come about if the supervisor is not insisting on proper identification, proper records.

"The service manager must have experience in office work, because this is keeping records.

"Buying in proper quantity, getting discounts, is possible if records show the number of items used."

From his experience as a manufacturer, Hanson noted that customers' service departments sent in defective equipment, but most of them failed to follow through and write the manufacturer asking him for credit on the returned equipment, which too often did not even show the shipper's name.

In National's service department a three-part tag is used for returned equipment by the journeyman. The equipment is sent back to the manufacturer on a no-charge purchase order.

Without this system, or an equivalent method of tagging and handling returned or defective equipment, it simply accumulates.

"There is money in that junk in a box, but you can't realize on it if you do not know where it came from," Hanson said. "Take a good look and see how much you have in the back room.

"As good businessmen you must know all of your costs," he said. "To do this you must keep records.

Three C's of Good Bookkeeping

"Here are the three C's of record-keeping. They must be: (1) Clear and legible; (2) concise; and (3) complete."

Discussing the service work order, Hanson said it "must show the name of the customer, his telephone number, a description of the trouble, the materials used, the hours worked, and what is very important, a place for the customer to sign for the job when completed.

"Unless your man gets this signature, it may turn out to be no signature, no pay. By the time the bill reaches the customer, it may be no one will remember seeing the serviceman, unless you have a signature."

Hanson also stressed the importance of having a card record on warranty equipment, showing when and where installed.

He emphasized, too, that records "should be filed in chronological order so you can go back and check for things that repeat and can be picked out and corrected.

"Every record costs money," he continued. "Do not set records up unless you are going to use them.

"There should be four copies of the work order. One copy is for the customer; one is for the historical record file; one is the invoice; and one is for your follow-up use."

Hanson underscored the importance of training programs to keep the journeymen and apprentices up-to-date.

In southern California a new training program is going to be started by the Inland Air Conditioning & Refrigeration Contractors Association of Riverside and San Bernardino counties to help journeymen improve their service and other work.

"The service manager," Hanson said, "should develop good communications. Let your people know what's going on. Tell them the truth."

"There are many opportunities for the refrigeration contractor in mechanical fields," he added. "In San Diego our firm installs and services mechanical doors in super and other markets, and stores."

"BUY FROM FABRIKANT"

Lowest prices for imported copper, brass, aluminum sheets, coils, manufactured strictly to ASTM and Federal specs. Large stocks all gauges and sizes on hand New York warehouse.

Orders also solicited for forward shipments.

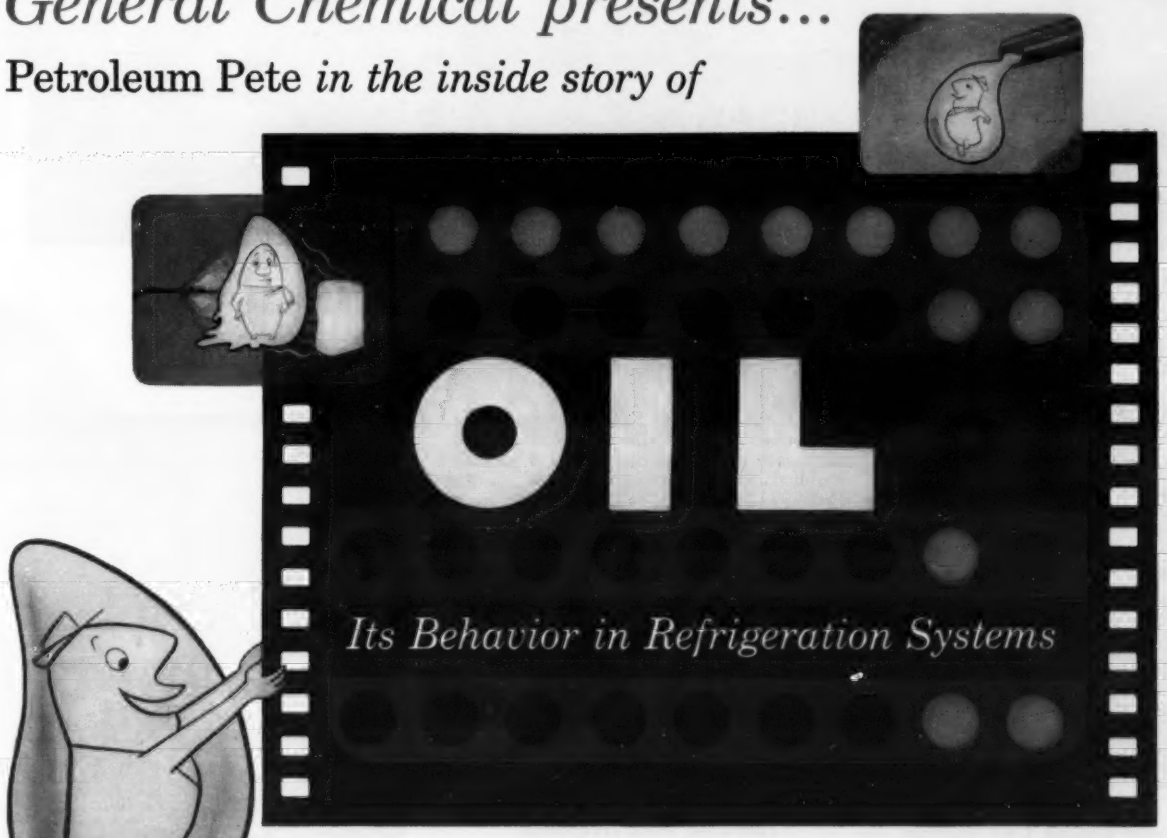
Stocklist and prices upon request.

FABRIKANT METALS CORP.
620 Fifth Ave. • New York 20, N.Y.

SERVING THE METAL INDUSTRY FOR OVER A QUARTER OF A CENTURY

General Chemical presents...

Petroleum Pete *in the inside story of*



...See and show **this educational, entertaining sound-slide film soon!**

Here is the inside story on the behavior of oil in refrigeration systems told in a full-color, sound-slide film. This authoritative film was prepared under the technical direction of Dr. Walter O. Walker, "Genetron" Consultant and Dean, Division of Research and Industry, University of Miami.

Fact-packed! Entertaining! Informative! General Chemical's new sound-slide film describes the important properties of refrigerating oil and how they are affected by extremes of temperature and pressure inside refrigeration systems. It answers clearly and simply such questions as: What causes oil breakdown and its destructive by-products —sludge and corroding acids? What are the basic problems experienced with oil in the compressor and other parts of the system? How are they overcome? What happens when oil mixes with the refrigerant? What causes wax separation? And many other important topics are covered!

General Chemical invites any group which is interested in the operation and maintenance of refrigeration systems to see and use this film.

Refrigeration Service Engineers Society Chapters are invited to show the film at their meetings.

Refrigeration and air-conditioning wholesalers, equipment manufacturers and contractors are encouraged to make full use of it for briefing personnel and to show it at meetings for customers. The film is also available to technical schools and colleges offering refrigeration courses.

Mail coupon now!

"Genetron" Department
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL CORPORATION
40 Rector Street, New York 6, N. Y.

Allied Chemical

Without cost or obligation, I would like to have a print and record of "OIL—Its Behavior In Refrigeration Systems" on loan for showing (state preferred dates) _____

☐ If you do not have a sound-slide projector, check here and a General Chemical representative will arrange a showing for you.

Name _____ Position _____

Company _____

Where film will be shown (chapter meeting, staff meeting, etc.) _____

AR-59

Street _____ City _____ Zone _____ State _____

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

to hear what you're saying," observed Brazilian visitor Rosina Pagan, "pretend that you're talking to them."

I find that the three major administrative problems on a campus are sex for the students, athletics for the alumni, and parking for the faculty.—CLARK KERR, *President, University of California.*

I have exactly the same chest measurement as Diana Dors.—LORD MANCROFT (English peer).

Woe Is Michigan

Things are in a melluva hess in Michigan. Both the Red Wings and the Pistons concluded dismal seasons. The Tigers haunt the American League cellar.

The state itself is broke. Payless paydays have arrived for state employes—including University of Michigan and Michigan State professors, who are seeking jobs elsewhere.

Even worse, some think, promising high school athletes are looking elsewhere, too. But the last straw was this recent headline in the *Detroit Free Press:*

BED SPACE CRITICAL
Many Sex Offenders
Wait Admission

What's left for Michiganders, anyway?

From Discomfort to Dissatisfaction In Several Uneasy Lessons

John Hertzler, for many years a York vice president (and presently a Connecticut squire) admonishes the NEWS for giving credit to the wrong fellow in connection with a pregnant idea.

In an April, 1959, issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS, climatologist Earl C. Thom of the U. S. Weather Bureau was kudoed for developing a "Discomfort Index" in reference to air conditioning.

Mr. Hertzler shames our collective editorial department memories by sending clippings to prove that *in our own industry newspaper* he (John Hertzler) proposed and outlined methodology for that "discomfort yardstick" some four years ago.

We stand corrected.

At the same time, while we're in a "give credit where credit is due" mood, the NEWS waggles a friendly finger at the Home Improvement Council and *Life* magazine.

Let us quote from an HIC newsletter:

"The Home Improvement Council has eyes on something the industry has long needed to break . . . the bottleneck in marketing of all types of home modernization products and materials.

"In most areas the homeowner can find no place to buy big-ticket modernization in the way he wants to buy it. In this chaotic, complex collection of industries that we call the home improvement business there are few dealers who sell more than a little piece of what's really needed.

"As has often been observed, many a homeowner must deal with as many as 10 companies to get a new kitchen or new bathroom or an expansion of his home.

"Obvious need—and we are not the first to define it—is the establishment of firms set up to sell, accomplish, and finance complete modernization projects in one transaction.

"To the consumer, it's one-stop shopping, and every other industry has made it easy for him. To the industry, it's package selling, and every other industry has devised 20th Century means of doing it in every market.

"On the brink of the Sensational Sixties the home equipment biz is beginning to take steps in the right direction. There are, here and there, a few dealers or contractors satisfying consumer demand for convenient buying. Prodded, inspired, and helped by HIC, several of them have created success stories that Horatio Alger would have envied.

"*Life*—always quick to provide leadership and support for the HIC idea—has been working for months on a basic and highly promising program."

Great, fellows, great! We're all for you, and *Life,* and the HIC promotions. But, as you say, you "are not the first to define it."

The NEWS was, as a matter of fact and record. Around five years ago AIR CONDITIONING, HEATING & REFRIGERATION NEWS presented a "Conscience of the Industry" editorial which cased and predicted the evolution of Home Automation Dealers.

Periodically, since that initial effort, this editorial page has reiterated that theme, advocated its birthing, and suggested ways and means.

Delighted are we that the Home Improvement Council and *Life* magazine are cudgelling in its behalf. The idea is sound, the need is tremendous, and everybody—especially ALL our industry's customers—will benefit when it eventuates. Godspeed!

Distinguished Citizen Ruthenburg

Louis Ruthenburg—corporate executive, lucid philosopher, and Elder Statesman of our industry—has won his third George Washington Honor Medal from the Freedoms Foundation.

This latest award was for the following editorial, entitled "Civilization," which first appeared in *Manage Magazine.* We are proud to quote:

"Belief in natural law is implicit in our Declaration of Independence and in the Constitution of the United States.

"Mad-made laws that fail to comply with natural law cannot prevail. Such laws simply bring the penalties that inevitably follow denial of inexorable truth.

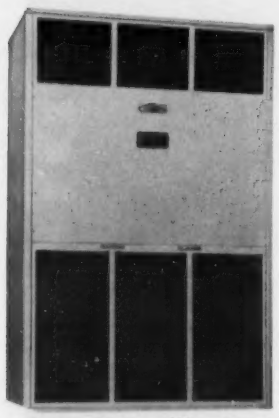
"Russian communistic philosophy denies eternal truth. It is completely atheistic and materialistic. Government based upon such philosophy cannot endure.

"However, if we, the people of the United States, continue in our present complacency and lethargy, the communist conspiracy may destroy 'government of the people, by the people, for the people.' Such destruction could introduce a dark age of long duration.

"If freedom is lost, the dark age will inevitably be followed at long last by a renaissance, by recovery of freedom and by a finer civilization than the world has known.

"Enduring civilization must conform with eternal truth."

MULTIPLE UNITS PROVE BEST METHOD OF AIR CONDITIONING PUBLIC LIBRARY



7½ ton Stewart-Warner air cooled Cooling Unit equipped with evaporator and blower.

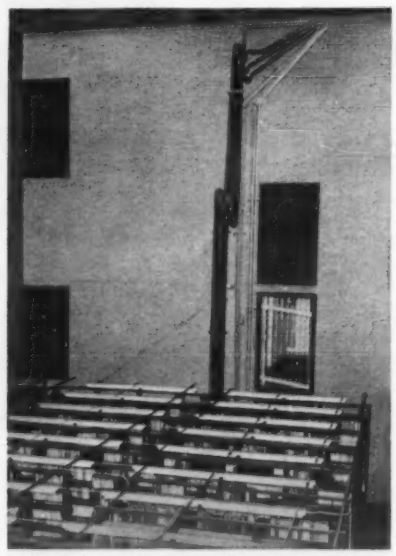
Humidity, dust and mildew are enemies of books...one of the first libraries to eliminate this menace is the Evansville Public Library and Vanderburgh County Public Library, Evansville, Indiana. Seven Stewart-Warner 7½ HP air conditioning units were installed in this 27 year old building.

As shown above, the condensing units are located on the roof in two banks and connected to the cooling units placed throughout the building.

The library has an open book "stack area" five stories high. The thousands of books kept there formerly required dusting every two months. Since installing Stewart-Warner air conditioning, dusting has been cut in half and control of humidity provides protection to books.

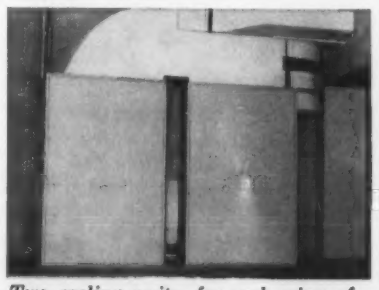
Multiple installation is better controlled, more economical

The maximum air conditioning load exists only a few times a year. With a multiple unit system only enough units to handle the load at any given time will function—with corresponding economy of operation. Multiple installations obviously lend themselves more effectively to zoning.



Book "stack area" is five stories high. Note refrigerant lines leading from room cooling units to condensers on roof.

Stewart-Warner Condensing Unit with lid tilted back. Note double fans.



Two cooling units, for each wing of building, feed into common duct system.

Ducts convey cooled air to various rooms in library.

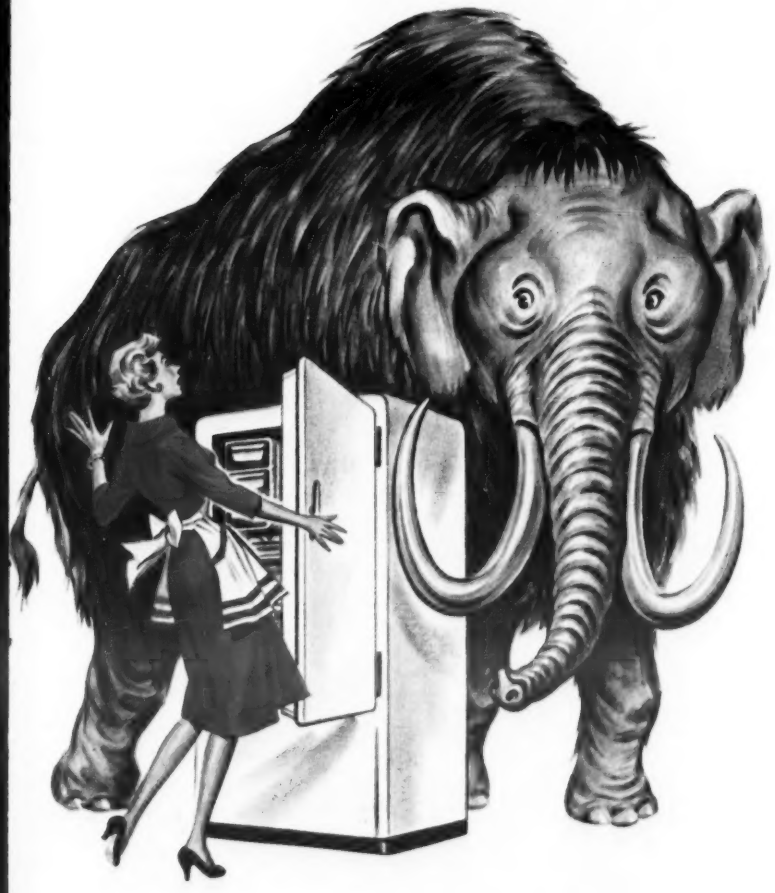
Stewart-Warner has a versatile line of air conditioning equipment for residential and commercial applications. District Sales Managers throughout the country are engineers qualified to help dealers design and sell air conditioning systems. Write for details on the Stewart-Warner Direct Factory Franchise.

Symbol of SW Excellence

STEWART-WARNER

HEATING AND AIR CONDITIONING DIVISION

Dept. BA-59, Lebanon, Indiana



Three Surprising New Salesmen for Your New Refrigerators

Especially those equipped with INLAND "Magic Touch" Ice Cube Trays

TURN THE PAGE AND READ HOW!

Making New Refrigerator Prospects for YOU!

This new and surprising team is now selling new refrigerators—**for you.**

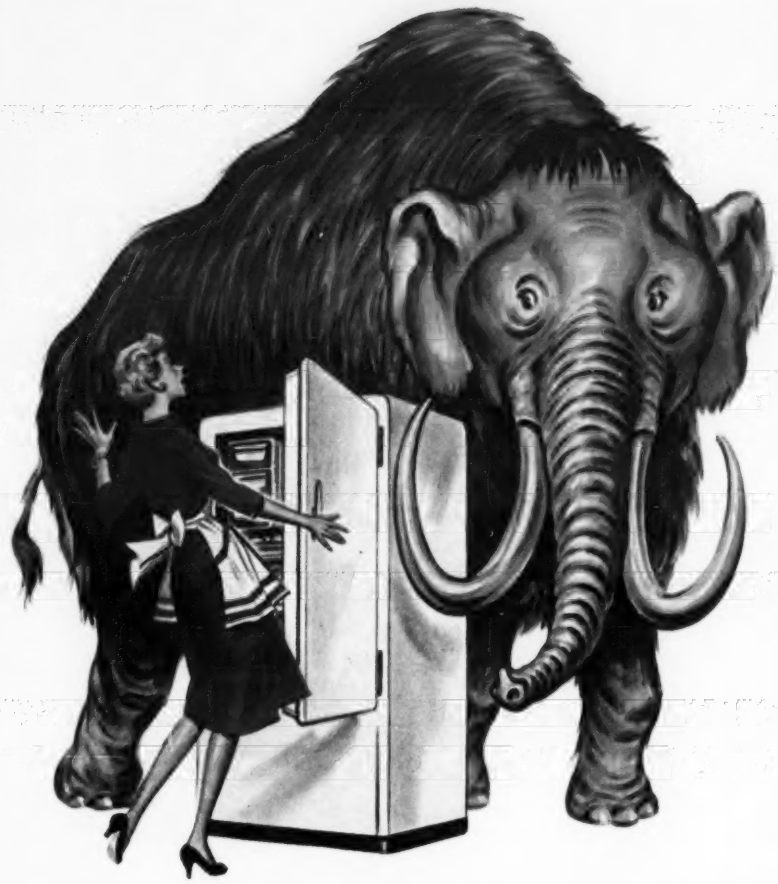
They're awakening consumers to the hard facts that their refrigerators lack modern conveniences. They're creating more live prospects, and pre-selling them hard—in magazines where folks will listen.

Yes, this series of new Inland advertisements, like the one shown here, appears this Spring in THE SATURDAY EVENING POST and BETTER HOMES AND GARDENS, using the extinct animal illustrations as a brand new type of new refrigerator salesman with a challenging message.

So, cash in on consumer desire to have the latest in ice cube convenience. As the Mastodon says, it's wonderful to have a whole trayful of hard, dry ice cubes at a "Magic Touch." The convenience of "Magic Touch" ice cube trays has sales compelling appeal to refrigerator prospects.

That's why you should use a "Magic Touch" demonstration to close sales. It's easy to keep a refrigerator in operation so sales personnel can demonstrate the ease and convenience of having a refrigerator equipped with the newest Inland "Magic Touch" Handi-Stor Ice Cube Trays.

Just be sure you order your new refrigerators equipped and shipped with Inland "Magic Touch" ice cube trays, in order to have the newest in ice cube convenience.



Is your refrigerator as outmoded as a Mastodon?

Your bulky visitor from the past just wants to know how you can stand your present refrigerator, when new refrigerators are so much better.

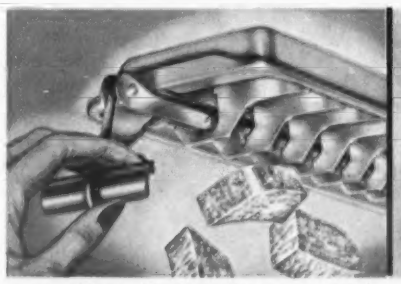
New conveniences added to refrigerators in the last few years make previous models outmoded. Such as vegetable and fruit storage sections, safety latches, varied shelf designs. And the wonderful ice cube service of Inland "Magic Touch" ice cube trays.

Yes, it's like magic to flip the "Magic Touch" lever. A whole trayful of ice cubes drops into the chest.

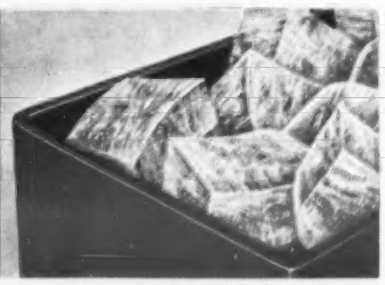
You always have several trayfuls of ice cubes stored, ready for instant use. Ice chest is handy in the kitchen or for serving.

See for yourself. At your favorite store, you'll find 1959 refrigerators have convenience and luxury you've dreamed about. Ask your dealer to show you the Inland "Magic Touch" ice cube trays and ice chest.

MODERN REFRIGERATORS MAKE AND STORE ICE CUBES THE "MAGIC TOUCH" WAY!



Just flip the "Magic Touch" lever. A trayful of ice cubes drops into the storage chest.



Ice chest stores several trayfuls of ice cubes, where they are always ready for instant use.

INLAND MANUFACTURING

"Magic Touch"

HANDI-STOR ICE CUBE TRAY

INLAND MANUFACTURING DIVISION • General Motors Corporation, Dayton, Ohio

In Muskegon Court House

Fan Coil Units Put Under Every Window But They Will Admit No Outside Air

MUSKEGON, Mich. — When the new Muskegon County Court House is finished next December, county officials will find a fan-coil unit for heating and air conditioning under every window in the six-story building—350 in all.

Despite their location, none are fresh air units—all are intended to recirculate air only. Fresh air will waft gently down from the ceiling through long narrow slots set a foot apart.

The unusual system was adopted, according to E. Roger Hewitt, consulting engineer, to provide complete air conditioning for all possible spaces in the building, no matter how it might be partitioned in the future.

Two Carrier steam absorption units rated at 140 tons capacity each will provide chilled water to all Warren Webster fan-coil units and to the seven Drayer-Hanson "Multizone" air handling units providing the fresh air. Condensing water is cooled by four packaged Marley cooling towers.

Hot water for heating the building through the same piping system is supplied by two 250-hp. Johnston gas-fired boilers.

One 15.4-ton Multizone unit serves the civil defense center to be established in the court house basement. It handles 4,800 c.f.m.

Then each floor of the building is handled by a separate Multizone unit. An 18-ton unit serves four zones on the first floor. Units of 21, 21.8, 21, and 20.6 tons capacity respectively serve five zones each on the second through fifth floors.

On the sixth floor—the courtroom floor—there are seven zones served by a 31.8-ton unit. Each courtroom comprises a separate zone.

There are 54 room air conditioners on the first floor, 63 each on the second through fifth floors, and 55 on the sixth floor of the 76 by 220-ft. building.

Fresh air is supplied through an "Acoustone" ceiling by Airson Co., Inc. This is a paneled ceiling with five slot air outlets in each panel. This air is further cooled and circulated by the under-window units and returned to the Multizones through the central corridor.

Ruiter Bros. of Muskegon is the mechanical engineer on the job. Magnuson & Sumner of Muskegon are the architects. Associate architects are O. J. Munson Associates of Lansing. E. Roger Hewitt & Associates of Lansing is consulting engineer.

Chicago RACCA Moves Hq. To Bigger Suite

CHICAGO—Expansion of all activities and an increase in membership has necessitated a move by the Refrigeration & Air Conditioning Contractors Association of Chicago to more spacious quarters, where it held open house recently.

Still located in the Builders building, where it has been housed for the 12 years of its existence, the association now occupies an ultra-modern suite in the building.

The group also leases space at 2230 S. Michigan Ave. for the training of servicemen.

3,000 Ton Chiller On One Compressor In Gateway Center

SYRACUSE, N. Y.—One of the largest refrigeration machines ever built, a centrifugal said to be capable of producing 3,000 tons' cooling capacity with a single compressor, is now being installed in an underground powerhouse at Pittsburgh's Gateway Center project, which is owned and operated by The Equitable Life Assurance Society.

Charles V. Fenn, Carrier Corp. vice president, announced that the new unit will furnish chilled water for use in air conditioning Four Gateway Center and the Pittsburgh Hilton hotel, both now under construction and scheduled for completion in 1960.

Powered by a 3,000-hp. Elliott electric motor, the huge centrifugal has a cooling capacity double that of each of the three Carrier centrifugals that have been serving Gateway's three existing towers since 1952.

"These centrifugals have proven so trouble-free that Joseph McCorkle, chief engineer for Equitable Life Assurance Society, has never had to take the covers off the the compressors," it was pointed out. "Before the big unit was completed, McCorkle visited the Carrier plant here 'to see what the inside of one looks like.'"

The 3,000-ton-capacity machine is being installed alongside the smaller units in a subbasement below the park area.

Hotel Lets Contract

PORTLAND, Ore.—A $40,000 contract has been let to Western Engineers for air conditioning all banquet rooms of the Multnomah hotel, it was announced by Bob Lindquist, manager.

Here's how General Electric has reduced capacitor size and weight since 1956

Typical Ratings	Reduction Volume	Reduction Weight
20 mfd—370 V	24%	25%
25 mfd—370 V	34%	29%
20 mfd—440 V	28%	24%

25 mfd—370 V rating pictured

FROM GENERAL ELECTRIC

NEW Flat-oval Capacitors

PROVIDE HIGHER μf RATINGS IN LIGHTER, SMALLER CASES

Now General Electric offers a new line of motor-run capacitors designed especially to save space in today's more compact air conditioning equipment.

The new capacitors feature the "flat-oval" case—a unique design that allows maximum volt-microfarad ratings in smaller, lighter capacitors. By making optimum use of available space while maintaining sufficient case surface to provide adequate cooling, flat-oval capacitors operate with uniformly high characteristics. The table above shows how design innovations, such as the flat-oval case, have enabled General Electric to reduce the volume and weight of air conditioning capacitors.

New, flat-oval capacitors also feature an improved phenolic cup design. While maintaining increased creepage distance, the new cup eliminates the collection of troublesome moisture. The new cup shape also makes possible painting the cover, as well as the case, with General Electric's corrosion-resistant Granite-Gray paint.

For complete details on General Electric's new air conditioning capacitors, contact your nearest Apparatus Sales Office; or write to General Electric Co., Section 448-5, Schenectady, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

$10 Million Tube Mill Allows Scovill To Expand Services to Air Conditioning Field

NEW MILFORD, Conn. — With completion of its new $10 million tube mill here, Scovill Mfg. Co. now has the facilities to expand its services to the air conditioning, heating, and plumbing industries.

This was emphasized by company officials during a press tour of the new facilities recently.

John R. Babin, copper tube sales manager, estimated that about 25% of the company's copper tube production would go to the air conditioning and refrigeration markets. The bulk of copper tube production will be water tube for various applications.

Selden T. Williams, company president, declared that for years tube production was a minor part of Scovill's main mill plants in Waterbury, Conn., 30 miles to the east. With the new plant, it is a separate and fully integrated operation standing on its own feet, he added.

It is the first time that Scovill has gone outside Waterbury to establish a primary metal producing unit. This was done, he explained, because space was inadequate to include the addition of copper tube and pipe to Scovill's established lines of heat exchanger and general commercial tube. It was not possible to increase facilities of the former tube mill.

According to Emory K. Rogers, director of buildings, systems, and engineering, and John J. Hoben, works manager, the new mill has been set up with complete integral work centers, instead of the usual central process operations with its duplication of similiar equipment in one area.

Located on a 72-acre site, the main building is 1,150 ft. long, 42 ft. high, and 368 ft. wide at the delivery end, 208 ft. at the other. It covers 293,000 sq. ft.

The streamlined layout results in minimum material handling and elimination of equipment duplication, they said. Annealing operations are at the central point with pickling, pointing, and drawing operations revolving around it.

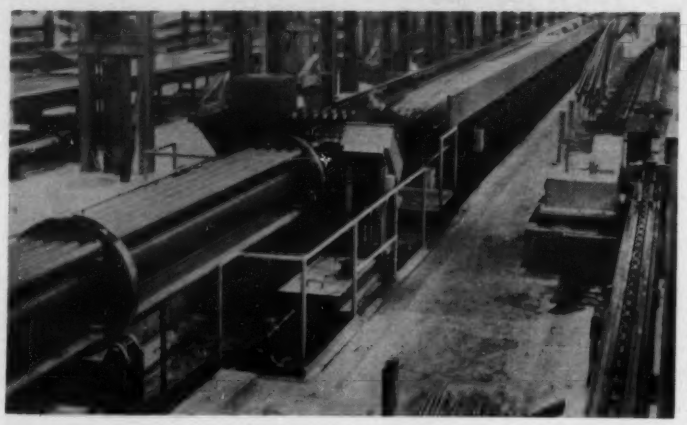
The plant includes the newest and one of the longest multiple position (five at a time) drawbenches capable of drawing up to 200 ft. of copper tube in straight lengths.

Longer length copper tubing is particularly in demand for radiant heating or cooling applications and in multi-story buildings where long, unbroken runs are desired.

Other features of the plant include the only twin reversible type bay transfer conveyors in existence. They can transfer up to 50,000 lbs. of tube at a time in either direction.

Tube elevators, said to be an original conception of Scovill engineers, at two of the 200-ft. long drawbenches, substantially reduce the need for crane service.

The plant is laid out so that copper tube and brass tube pass through their complete manufacturing process in separate straight-line bays.



SCOVILL MFG. CO. recently opened its $10 million tube mill in New Milford, Conn. The multiple-position finish draw-bench shown above is claimed to be one of the newest and longest in the world.

Ranco Sales, Earnings for Quarter Rise Above Same 1958 Period

COLUMBUS, Ohio — Ranco, Inc. announced that consolidated net sales for the quarter ended March 31 aggregated $10,727,988 as compared with $9,048,857 in the corresponding quarter a year ago.

Consolidated net earnings were $1,079,934 or 99 cents a share, compared with $543,006 or 49 cents a share in the same quarter for the prior year.

In the March quarter the proposal submitted to the shareholders of The Wilcolator Co. was accepted and the acquisition of Wilcolator was consummated, it was noted.

The current and comparative financial information, for both 1959 and 1958, is after consolidation of Wilcolator with Ranco and its other wholly-owned subsidiaries and allowance for what would have been the dividend requirements of the Series "A" preferred shares which were actually issued on March 16, 1959, it was stated.

Consolidated sales for the first half of the fiscal year ended March 31 were $18,735,418 as compared with $16,485,417 a year ago—an increase of 14%. The profits after taxes in the first half of the fiscal year were $1,570,579 or $1.43 a share, which compares with $958,067 or 86 cents a share in 1958.

"The results of operations in the second quarter reflect the improved conditions in the industries we serve in the United States and the continued growth of our operations overseas," the statement said.

PERFECTION brings you

1

REMOTE CONDENSER

Compressor and air-cooled outdoor coil unit provides automatic winter heating and summer cooling without fuel or water.

2

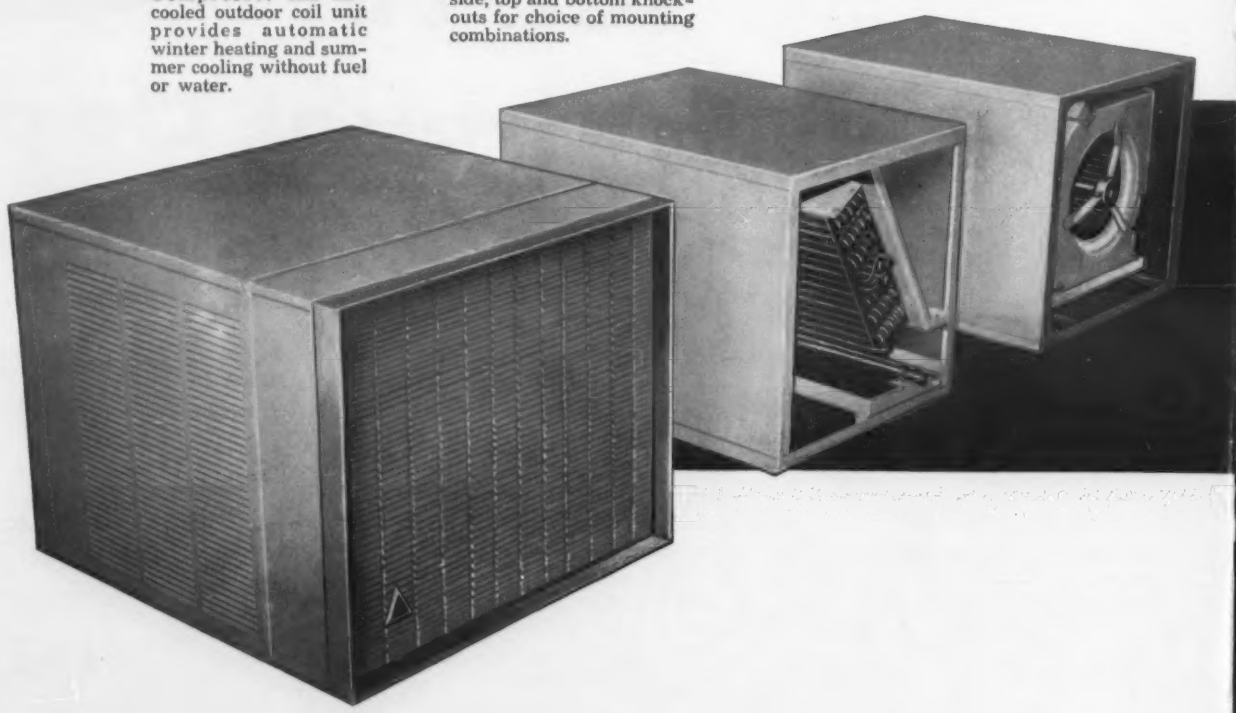
INDOOR COIL

Compact coil unit measures 22½" x 29" x 22½", with side, top and bottom knockouts for choice of mounting combinations.

3

AIR HANDLER

Quiet blower is housed in matching cabinet, attaches to coil unit on side, top or bottom to provide any desired type of air discharge.



March Air Conditioner Sales Better '58 Slightly In Several Areas But Drop In 3 Large Cities

DETROIT—March shipments of air conditioners registered small gains over last year in several areas of the country, but in three large cities they suffered sizeable drops.

Reports received from utilities and associations in scattered spots showed first-quarter sales generally improved and dehumidifier sales in most areas doing much better than in 1958.

Dallas Power & Light Co. reports that dealers in its territory sold 3,601 air conditioners during March, up 14% from the 3,158 in the same month last year. First-quarter sales were 8,932 units as compared with 7,244 in 1958.

Chattanooga area dealers sold 98 room air conditioners, three central residential units, seven heat pumps, and 34 commercial air conditioners during March, the Electric Power Board reports.

Room and residential unit sales were 13% higher than in March, 1958 and commercial units were up 209%. Heat pump sales fell a unit short of last March. Only four electric furnaces were sold as compared with 12 in 1958.

Southwestern Pennsylvania dealers reported sales of 69 room air conditioners to the West Penn Power Co., 38% more than the 50 they sold last year. Quarterly sales were 125 units as compared with 112 last year.

These same dealers sold 23 dehumidifiers in March as against nine last year; 70 for the quarter as against 32 last year.

Figures released by the Electrical Association of Philadelphia indicate that distributors there sold 5,404 air conditioners to dealers in five surrounding Pennsylvania counties, up slightly from the 5,348 sold in March, 1958. Quarterly sales were 13,030 units, down a bit from the 14,419 sold last year.

Out in the cool Inland Empire, dealers reported selling three room air conditioners and four central air conditioners during March and 12 and 11 units, respectively, for the quarter. Three of each type were sold in March last year and 11 of each for the quarter.

In St. Louis, distributors shipped 1,789 room air conditioners to dealers in the Union Electric Co. territory during March, 36% less than the 2,786 shipped in the same month last year. Sales of 3,075 units in the first quarter were 42% below last year.

Though their shipments of 314 dehumidifiers were down 16% from March, 1958, the 709 shipped during the first quarter was 57% ahead of the 451 shipped last year.

Electric Institute of Washington, D. C. reports that distributors sold only 1,441 room air conditioners (including 2 hp.) during March as compared with 2,246 last year. Quarterly sales, however, were up, 5,141 units this year to 4,825 last year.

Dehumidifier sales were well ahead of 1958 both for the month and the quarter. March saw 176 sold as compared with 79 last year. For the quarter, 1,471 were sold as against 215 last year.

Electrical League of Cleveland reports room cooler sales off 51% for March and down 30% for the quarter. Dehumidifier sales, on the other hand jumped 117% for the month and 73% for the quarter.

A February report from the Kansas Gas & Electric Co. shows 35 central air conditioners sold in its territory during the month and 58 for the first two months. Dealers sold 107 room air conditioners in February as against 163 last year.

Utah Power & Light Co. reports 44 room air conditioners and five central air conditioners sold in its area during January and February.

Plan Air Conditioning Promotion In Inland Empire League Area

SPOKANE, Wash.—A spring promotion of room and central unit air conditioners was planned by the recently-organized air conditioning committee of the Inland Empire Electrical League.

The program was scheduled to include 24 newspaper ads—four ads each week for six weeks; 200 spot radio commercials; and window banners for participating dealers.

In addition, the May Issue of *Farm News,* the Washington Water Power Co. direct mail publication sent to 12,000 Inland Empire farmers, features a full-page ad on its back cover.

Although no definite schedule was established, the promotion was designed for immediate insertion "at the first indication of hot weather."

2 New Buildings Let Contracts for Water Treatment

NEW YORK CITY — Contracts to treat the water used in the air conditioning systems of the new Pepsi Cola building at 500 Park Ave. and the new S. Klein Department Store in Yonkers have been awarded to Water Service Laboratories, Inc., chemical engineer and specialist in water treatment, the firm announced.

Equipment to be treated in the Pepsi Cola building includes the 450-ton capacity cooling tower serving the condenser water cooling system.

At S. Klein the service organization will treat the cooling tower and a closed circulating system that chills the water in the summer for cooling and heats it in the winter.

The contract was awarded by the J. E. Schecter Corp., mechanical contractor.

F. E. Benigar Named To Tulsa Examining Board

TULSA, Okla. — Floyd E. Benigar was named recently to fill the journeyman vacancy on the refrigeration examining board.

The vacancy was created by the death of H. W. Memholtz, factory representative on the board. Roy Hinman, who had been the journeyman member, was moved to factory representative.

a new remote heat pump in **3** *versatile parts*

the TRI-PAK®

Another dramatic step in the FORWARD TREND that is leading the industry

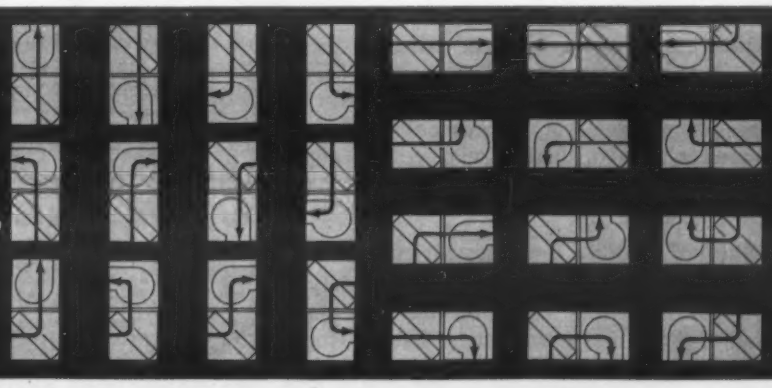
PERFECTION leadership in air conditioning design is demonstrated by a wide choice of remote and self-contained units with a history of engineering advances that have helped pace the progress of the industry.

PERFECTION leadership in sales policy set the industry standard in 1956 through extensive advertising in trade publications. At that time as now, Perfection established wholesalers to serve Perfection dealers more efficiently. Perfection flatly refused to compete with dealers by setting up branch offices. Today, others are following this proven trend that Perfection set years ago.

PERFECTION led the world in furnace design to win international honors at the Brussels World's Fair, where Perfection was the only furnace chosen to represent "residential heating of the future." For years, Perfection's 3-stage fire and patented Regulaire blower control have provided heating comfort and economy that is still unmatched. Today's growing emphasis on furnace styling and more perfect heat distribution are a part of the Forward Trend that was born of Perfection leadership.

PERFECTION design and engineering now lead again with the all new TRI-PAK heat pump, first in flexibility, first in year-round comfort. With the addition of the TRI-PAK, Perfection brings you the first complete line of residential self-contained *and* remote heat pumps. Isn't it time to stop *following* the leader . . . and *be* the leader with Perfection?

TRI-PAK's NEW VERSATILITY GIVES YOU ANY AIR DELIVERY PATTERN YOU NEED ...VERTICAL OR HORIZONTAL



PERFECTION air conditioning gives you the business! When you're bidding for business, Perfection helps you get it with a full line of remote and self-contained central-system air conditioners in 2, 3, and 5-ton capacities. Whatever the job, there's a standard Perfection component to make installations easier and more profitable for you.

Write today on your letterhead for full information and the name of your nearest Perfection Distributor

Perfection® INDUSTRIES

DIVISION OF HUPP Corporation

1135 Ivanhoe Rd. Cleveland 10, Ohio

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark reg. U.S. Pat. Office; Est. 1924

AIR CONDITIONING HEATING & REFRIGERATION NEWS

Copyright 1959, Business News Publishing Co.

F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

Published Every Monday by BUSINESS NEWS PUBLISHING CO., 450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924. Subscription Rates: U. S. and Possessions and Canada: $6.00 per year; 2 years, $9.00; 3 years, $12.00. All other countries: $10 per year. Single copy price, 40 cents. Ten or more copies, 30 cents; 50 or more copies, 20 cents each. Send remittance with order.

EDITOR & PUBLISHER, George F. Taubeneck

EDITORIAL DIRECTOR, Phil B. Redeker

ASSOCIATE EDITOR, C. Dale Mericle

ASSISTANT EDITORS: John Sweet, Hugh Mahar, George Hanning

TECHNICAL EDITOR, Frank Versagi

STATISTICAL EDITOR, John MacLean

GEN. MGR., Warren Jones

GEN. PROD. MGR., Walter Schuler

ADV. PROD. MGR., A. M. Barrow

SUBSCRIPTION MGR., Rosalie Ashley

READER'S SERVICE MGR., Vincine Mogyorodi Bruzos

PRESIDENT & PUBLISHING MGR., Edward L. Henderson

VICE PRESIDENT & ADV. MGR., Robert M. Price

VICE PRES. & ASST. PUBLISHING MGR., Allen Schildhammer

WESTERN ADV. MGR., Rex Smith

EASTERN ADV. MGR., Frank Taylor

ADVERTISING OFFICES:
New York, 521 Fifth Ave. MUrray Hill 2-1928-9 Robert M. Price, Frank Taylor
Chicago, 134 S. LaSalle St. FRanklin 2-8093 Rex Smith
Detroit, 450 W. Fort St. WOodward 2-0924 Allen Schildhammer
Los Angeles, 4710 Crenshaw Blvd. AXminster 2-9501 Justin Hannon

Member, Audit Bureau of Circulations. Member, Associated Business Publications.

VOLUME 87, NO. 3, SERIAL NO. 1,573, MAY 18, 1959

"If you think the editor sometimes makes a mistake in what he gives you to read, you ought to see the mass of stuff from which he saves you."—*Karl A. Bickel,* former president of the United Press.

They'll Do It Every Time

by Jimmy Hatlo

OH, MR. BIGDOME! I CAUGHT AN ERROR ON THIS BILL OF LADING! LUCKY I CHECKED IT! CAN'T BE TOO CAREFUL, I ALWAYS SAY··· I'D LIKE TO SUGGEST A NEW SYSTEM···
APPLE-SHINER!! TRIES TO MAKE EVERY-BODY LOOK DUMBER THAN HE IS!
WHEN HE PULLS A ROCK, IF HE CAN'T BLAME SOMEBODY ELSE, HE'LL DO HANDSPRINGS TO GET US TO COVER UP FOR HIM····
YEAH! KEEPS HIS COAT ON IN THE OFFICE! THINKS THAT'S THE EXECUTIVE TOUCH···
HERE'S A LITTLE ERROR PHOOTKISS MADE IN THE NOT-SO-PETTY CASH·· BIGDOME, HERE I COME····
HEY! WHY THAT·· HE GRABBED IT RIGHT OUTA MY HANDS!
ZOOM
WATCHING PHOOTKISS TRYING TO STOOLIE IN ON THE RIGHT SIDE OF THE BIG MAN···
THE NEWLYWEDS OFF TO ANOTHER CALAMITY
3-31
JIMMY HATLO

How Do You Get Through To People?

IN BUSINESS, the ability to communicate ideas and information is essential, utmostly. Perhaps it is THE most important clue to corporate (and individual) success.

William Tobey, vice president of Abraham & Strauss, reveals how the nation's fourth-ranking department store has approached this problem. The key: communications training for executives via "seminars."

Naturally there is some skepticism among junior executives who are led by the hand, sometimes unwillingly, toward the first seminar—an attitude of "we all speak English, don't we?"

Training director for A & S disposes of that canard with a simple exercise. Supervisors are shown a series of geometric figures and asked to describe them. No two answers remotely are alike, it always turns out.

Thereupon seminarees get the point, and usually listen attentively while the director describes lightly some of the more common types of clouded corporate non-communicators, such as:

(1) *The Conclusion Jumper,* who's always one step ahead of the speaker—mostly in the wrong direction.

(2) *The Commandant,* whose attitude is: "I'm the boss. All I have to do is say what's on my mind and they'll jump."

(3) *The Poor Man's Freud,* who's so busy looking for feelings of inferiority or repressions or insecurity that he has no attention to spare for what's being said. (This fellow was bitten by a college psychology course.)

(4) Old Man River, who rambles on forever but never really does say anything that helps establish a conclusion.

(5) *The Three-Belled Grapple,* who tries to show his importance by taking every minor phone call that comes in, and frequently (natch!) asks: "What's that again?"

(6) *The Cheerleader,* who promises the moon, agrees with everyone, but never really does anything to be helpful. His associates soon learn that it doesn't pay to listen to him, because they'll have to do his work anyway.

(7) *The Double-Dotted "I."* He worries out such detailed instructions on how to do a minor job that true understanding of that task is lost in a shuffle of those details on which he dwells so boresomely.

Of course, the Abraham & Strauss groups are assured, none of those types are present at the seminar! However, their trainees are indiced to recognize these familiar office stereotypes, and challenged to figure out how to deal with them.

From subsequent seminar discussions, participants derive a few key points. They are:

(1) Listeners differ in mental ability and span of attention.

(2) The importance of "saving face" for the losers during or after an argument must be appreciated by those who "win" that argument.

(3) Rank in an organization is an inhibiting factor to the free expression of ideas. People hesitate to utter an opinion which might differ from that of someone who is their boss. At Abraham & Strauss, juniors are encouraged to get rid of such inhibitions.

(4) Too many executives, unfortunately, fit information given them by subordinates into concepts based on what they already know and accept. "Who are you to tell ME that I'm wrong?" they imply or infer.

(5) Physical and mental climates affect understanding. Time pressures, family distractions, and personal emotional moods frequently are bars to effective communications in the business world.

"Arrogant people," according to this department store executive, "are unteachable people. If a boss is above argument this feeling is conveyed to his employes. His arrogance builds a wall through which clear understanding or good communications can't penetrate."

Junior executives are advised to reexamine their own emotional attitudes, too. They should ask themselves continually how they can reduce "allness" (treating every corporate problem as a personal one) in themselves. Subordinates who continually are on the defensive are the equivalent of the arrogant.

Another hurdle to effective communications is common: failure to listen adequately. Obviously, listening is an *active process,* which involves much more than just hearing the words somebody else contributes.

What you're really trying to understand is the *meaning* of the person who is talking.

Above all, he adjures, don't listen with half your mind while the other half thinks about what you're going to say next. Otherwise, intercorporate communication dies. And then you'll be dead as a useful member of the firm, too, probably; and too soon.

SEEKS TITLES OF BOOKS ON AIR CONDITIONING

Bonaplata 14 1°
Barcelona, Spain

Editor:

I should be glad to be informed which are the latest and best air conditioning text books in English, available in the U.S. If you are so kind as to publish my letter in your NEWS, surely your more experienced readers will help me with their valuable informations.

CESAR TEXIDO

ANOTHER SUPPLIER OF VANS FOR AEC SPEAKS UP

Comfort Air Service Co.
1613 Second St., N.W.
Albuquerque, N. M.

Editor:

We read with a great deal of interest the article in the Jan. 26 issue of AIR CONDITIONING, HEATING & REFRIGERATION NEWS about the air conditioned van built by the Harvey Hottel company.

In as much as we have been furnishing a number of vans for the A.E.C. for bomb tests at Eniwetok for the past several years we were particularly interested in their comment that their trailer was the only unit which performed with trouble free operation continuously.

We believe that their facts are limited and that this is not a true statement. We have information that the majority of vans air conditioned by us have performed equally as well as the one written up in the article.

Yours Truly,
N. P. GUNTER,
President

NEWS readers are invited to write to the editor giving their opinions on any subject of interest to the industry.

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING, HEATING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only $6.00 per year, 53 issues (U.S. and Canada). Foreign: $10 per year.

AIR CONDITIONING, HEATING & REFRIGERATION NEWS
450 W. Fort St., Detroit 26, Mich. 5-18-59
Send the NEWS every week for: ☐ One Year $6. ☐ Three Years $12.
☐ Payment Enclosed ☐ Bill Me ☐ Bill Company
Name.....
Company.....
Street.....
City..... Zone..... State.....
IMPORTANT: Company's Type of Business.....

Air-Conditioning & Refrigeration Assn. Formed In Malaya

SINGAPORE — The Malayan Air-Conditioning & Refrigeration Association was formed here recently, with S. H. Tan of General Refrigeration Co. being elected president and S. H. Garrett of Climate Engineering, Ltd. secretary-treasurer.

Members include David Lam, Edward Eu & Co.; L. M. Weiner, A. Clouet & Co. (M), Ltd.; S. R. Rasmussen, East Asiatic Co., Ltd.; Marden Tan, Warden & Co.; T. Tungerford, Sime Darby & Co., Ltd.; Gordon Miles, Sandilands Buttery & Co.; S. Locke, George Lee, Ltd.

Also, Mr. Dickerson, Condair Engineering, Ltd.; C. A. Lee, Kian Guan (M), Ltd.; Paul McMichael and James Sullivan, International Air Conditioning, Ltd.; Jeffery Tan, Borneo Co., Ltd.; Martin Lee, Lee & Fletcher, Ltd.; and A. Kahlenberg, Climate Engineering.

Overseas Equipment Appointed by Koch

KANSAS CITY, Kan. — Millard Mayer, chairman of the board of Koch Refrigerators, Inc. here, has announced the appointment of Overseas Equipment Corp. as exclusive distributor of Koch equipment in Europe, Asia, Africa, and Australia.

In these areas, Overseas Equipment will act as Koch distributor for the full line of refrigerators, freezers, food warming cabinets, and the newly-introduced line of automatic icemakers.

Richard L. Morris is head of the refrigeration and air conditioning division of Overseas Equipment Corp., with headquarters at 350 Fifth Ave. in New York City.

Chapman, Wilcox Tour Latin America

DETROIT—B. A. Chapman, executive vice president and general manager of the appliance division of American Motors Corp., was in Mexico recently as part of a tour of Latin American countries to confer with distributors of Kelvinator and Leonard appliances, it has been noted.

He was accompanied by E. H. Wilcox, vice president of Kelvinator International.

In addition to the Mexico visit, they will hold a series of business meetings with appliance distributors and manufacturing licensees in Cuba, Puerto Rico, Brazil, Argentina, Chile, and Peru.

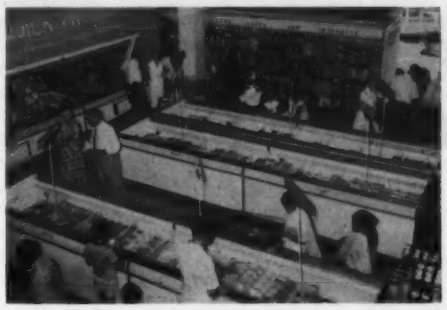
IMPROVED HYDŌ HOLLOW CONE SPRAY NOZZLES CAN'T CORRODE

Spraying Starts Below ½ PSI
Injection Molded of "Tenite" (Butyrate)

NOZZLE NO.	IPS	GPM AT 7 PSI	SPRAY ANGLE
H .8	⅛"	.8	60°
H 1.0	⅛"	1.15	75°
H 1.8	¼"	1.8	90°
H 2.5	¼"	2.5	100°
H 3	¼"	3.3	78°
H 5	¾"	5.0	85°
H 7	¾"	7.8	100°

Send $1.00 for 3 trial nozzles
AUSTIN MANUFACTURING CORPORATION
305 Perry Brooks Bldg. Austin 1, Texas

Supermarket In Singapore



TYPICAL of the ever widening acceptance of American-type supermarkets all around the globe is Fitzpatrick's in Singapore. All equipment used in this ultra-modern market was supplied by American firms. Refrigeration equipment and checkout stands were supplied by Warren Co., Inc.

Iranian Professor Tours Friedrich Plant

SAN ANTONIO—Ali-Asghar Shokrian, professor at the University of Tehran in Iran, recently toured the San Antonio plant of Friedrich Refrigerators, Inc.

Shokrian visited the factory as a part of his itinerary on the State Department's foreign specialist's exchange program.

He was visiting American universities, manufacturers, and research facilities to enlarge his field of knowledge in heating, ventilating, air conditioning, and refrigeration.

General Controls Forms Subsidiary In Dusseldorf, West Germany

GLENDALE, Calif. — Establishment of a European subsidiary by General Controls Co. was announced by William A. Ray, president.

Located in Dusseldorf, West Germany, the new subsidiary, General Controls, G.m.b.H, will act initially as General Controls' sales and distribution center for Continental Europe. Expansion of these functions to England is planned, he said.

Ray pointed out that the second phase of the subsidiary's operation will include the assembly of General Controls' products from shipped-in-parts. He anticipated that by the end of 1959 manufacture of certain General Controls' products on a limited basis will begin.

He said that establishment of the new facility does not exclude the possibility of continuation of certain European licensee and contract agreements now in effect.

General Controls will own controlling interest in the German subsidiary. West German industrialist, Helmut Kiepe, will become general manager and hold minority interest.

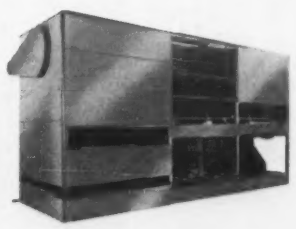
Plan Israel Chain

TORONTO, Ont., Can. — The firm which opened Israel's first supermarket plans to set up a 20-store chain in the next five years, it was reported here. A group of Canadian and U. S. businessmen established the first "super" in Tel Aviv.

CITIES SERVICE OIL COMPANY — ROMA WINE COMPANY — ALLEN B. DUMONT LABORATORIES, INC. — AMERICAN AIRLINES, INC. — GENERAL SERVICES ADMINISTRATION — J. M. FIELDS STORES — U. S. ARMY — FROZEN RITE, INC. — PACIFIC TELEPHONE & TELEGRAPH COMPANY — TEXAS FASTENER CORPORATION — RONEY PLAZA HOTEL — UNIVERSITY OF SOUTHERN CALIFORNIA — PHILLIPS PETROLEUM COMPANY — CHICAGO BRIDGE & IRON — GENERAL ELECTRIC — ATLANTIC & PACIFIC TEA COMPANY — ROBERT HALL CLOTHIERS — HUMBLE OIL COMPANY — OLIN MATHEISON — LOCKHEED AIRCRAFT AREOJET — SYLVANIA ELECTRIC — F. W. WOOLWORTH COMPANY — KAISER ENGINEERING CORPORATION — U.S. NAVY SAFEWAY STORES — CONVAIR — ATOMIC ENERGY COMMISSION — CONTINENTAL BAKING COMPANY — REPUBLIC AVIATION — FOOD FAIR STORES — NATIONAL CASH REGISTER — BURROUGHS CORPORATION — FEDERAL HOUSING ADMINISTRATION — EDISON COMPANY — RAND McNALLY & COMPANY — MINNESOTA MINING & MANUFACTURING BANK OF AMERICA — U.S. AIR FORCE — NEW YORK [illegible] COMPANY — FRANKLIN STORES — NATIONAL FOOD STORES — CENTRAL CASUALTY INSURANCE COMPAN[illegible] COMPANY — PACIFIC GAS & ELECTRIC — RADIO CORPORATION OF A[illegible] KY LAGER BREWING GENERAL [illegible] T STORES SEARS & [illegible] — STATE FARM INS[illegible] MUZAK CORPORAT[illegible] PORATION BOND STO[illegible] NSURANCE COMPANY [illegible] REFINING COMPANY [illegible] COMPANY NEW ENGLAND TELEP[illegible] LONIAL STORES, INC GLENN MANUFACTURING COMPANY — CURTIS WR[illegible] EL MUNDO, INC. — U. S. PLYWOOD — FORD MOTOR COMPANY OF CANADA, LTD. — DIPLOMAT HO[illegible]ILD CAMERA & INSTRUMENT COMPANY — AMERICAN THERMOS PRODUCTS — PACIFIC MURPHY MANUFACTURING CORPORATION — THE MAYTAG COMPANY — INTERNATIONAL BUSINESS MACHINES — NATIONAL BISCUIT COMPANY — ASIATIC PETROLEUM CORPORATION — INSULAR CHEMICAL COMPANY STANDARD LIFE & ACCIDENT COMPANY — EASTMAN KODAK COMPANY — UNIVERSITY OF OKLAHOMA — BELL AIRCRAFT MONARCH METALS WEATHERSTRIP COMPANY — McDONNELL AIRCRAFT CORPORATION — BETHLEHEM STEEL COMPANY — B-THRIFTY STORES, INC. — WAYNE PUMP COMPANY — ARMA CORPORATION — THREAD, INC. — AMERICAN OIL COMPANY TRANSCON FREIGHT LINES — AMERICAN CAN COMPANY — KANSAS CITY FIRE AND MARINE INSURANCE COMPANY — T G & Y STORES — BRITISH OVERSEAS AIRWAYS CORPORATION — RAND McNALLY & COMPANY — NEW YORK TELEPHONE COMPANY WESTERN ELECTRIC COMANY — AMERICAN MACHINE & FOUNDRY — W. T. GRANT COMPANY — PIGGLY-WIGGLY FOOD STORES J. C. PENNEY COMPANY — PENN FRUIT STORES — RUTGERS UNIVERSITY — U. S. MARINE CORPS — HOWARD JOHNSON'S KROGER COMPANY — CIVIL AERONAUTICS ADMINISTRATION — E. I. DuPONT De NEMOURS & COMPANY — SAHARA HOTEL

GOVERNAIR

GOVERNAIR PRODUCTS ARE NOW IN USE BY THESE DISTINGUISHED ORGANIZATIONS



Model SCMZ

Self-contained Multi-Zone air conditioner — one of 18 basic Self Contained equipment models, available from 3 to 120 tons.

Model GMZ

Governair also "Satisfabricates" a complete line of Vertical, Horizontal and Multi-Zone Air Handling Units.

"SATISFABRICATED"℠

. . . that's the copyrighted term that describes Governair air conditioning . . . equipment which is so basically flexible in design, that it can be manufactured to fit almost *any* space and load requirement.

This beneficial feature, pioneered and developed by Governair, is coupled with imaginative, tested engineering and quality workmanship. The end result is an installation that's a much *wiser* dollar investment.

Write for detailed information, or consult your yellow page directory for the name of our local representative.

THE GOVERNAIR CORPORATION
4840 N. SEWELL • OKLAHOMA CITY

Several Safety Measures Suggested by Victim of San Francisco Ammonia Blast

MIAMI BEACH, Fla. — A recommendation that all ammonia piping 2 in. and larger have welded connections, particularly where the piping joins the ammonia compressor was laid before the National Association of Practical Refrigerating Engineers at its annual meeting here by John Herzog, chief engineer for Burgermeister Brewing Co., San Francisco.

The recommendation was made as a safety measure. "At this point, a threaded connection would be the weakest link in the entire piping system," Herzog said.

He also recommended that NAPRE, in cooperation with other engineering societies, set up and adopt a standard color code for power plants.

Herzog made his recommendation as the result of a frightening explosion that caught him in the power plant and gave him a new insight into the explosive properties of ammonia.

"It is apparent that the explosive properties of ammonia are not generally recognized by many users," he declared.

"Many of the experiments conducted in laboratories are not conclusive and cannot produce actual conditions which could be encountered in various plants."

Describes Own Experience

He described his own recent experience thus:

"It happened on a Monday morning at 8:30 a.m. The day shift had started its production schedule. I made my regular inspection through the plant when I heard a hissing sound like the blowing of a boiler safety valve.

"When I arrived at the boiler room everybody had evacuated the plant and buildings on account of the ammonia fumes.

"I could not find any of the operating personnel at this time, so I proceeded to shut off the main gas supply valve to the boilers. It was impossible to enter the compressor room with the available cannister type gas mask.

"In the meantime the fire department had arrived and supplied me with a self-contained air pack gas mask. I then proceeded to the compressor room to determine the break and see if any one might possibly still be in the danger zone.

"All of the eight ammonia compressors, three air compressors, and four CO_2 compressors were in operation. The discharge line of No. 1 ammonia compressor had sheared off at the threaded connection on the compressor.

"After securing the suction valve I proceeded to shut down the machines from the nearby switch board. I succeeded in shutting down three compressors. But after opening the circuit breaker of No. 4 compressor, a violent explosion took place which lifted the skylight roof in the 40-ft. by 60-ft. by 20-ft. ceiling of the compressor room.

"The blast knocked me to the floor. I do not know how long I laid unconscious, but when I revived, I noticed long bluish flames in horizontal layers of approximately 1 ft. apart and 6 ft. above the floor in the entire compressor room.

"I might state that I was somewhat uncomfortable as I viewed the situation. Realizing that I was still among the living I crawled on my hands and knees to the nearest exit where I told one of the engineers to secure the discharge valve of No. 1 compressor.

"The situation was then under control. After three hours the whole plant was back in operation.

"I spent the next four weeks in the hospital recuperating from second and third-degree burns and severe shock.

Possible Causes Cited

"The cause of this accident might have been excessive vibration caused by settling of foundation on account of heavy spring rains and poor soil conditions, a slug of liquid ammonia, or pipe stresses or metal fatigue, especially in the threaded connection.

"There might be all kinds of safety procedures formulated by safety committees, commissions, public or state or Federal agencies concerning what to do first in an emergency.

"First on such a list, naturally, should be to do all possible to save a life—which should apply in any emergency. Next in importance is to get the plant safely back into operation as soon as possible.

"In the accident just described, the main primary power could have been disconnected. But this action would have shut down all elevators, man lifts, and lights, thereby running the risk of catching someone in a tank, cellar, or other dark place, who would have had no chance of leaving the building.

"The electric control system of compressors and other machinery could have been located on the outside of the building, but in the case of having to fight a possible resultant fire with water, a serious shut down could have resulted.

"This accident has proven that the combustion of a mixture of ammonia and air has not received the same degree of study as the combustion of other combustible gases. There is still much uncertainty in regard to certain phases of this reaction.

"At the time of this accident, there were eight compressors having 1,000 tons of refrigerating capacity discharging at 150 lbs. pressure into the compressor room.

"Since the entire roof was lifted, and the flames were in various layers for the full length of the room, I believe the assumed percentage of 12% and 25% concentration cannot be correct.

"A wider range of concentration, it would appear, must be accepted.

Acme . . . the **practical** approach to air conditioning

RG 3 to 30 tons

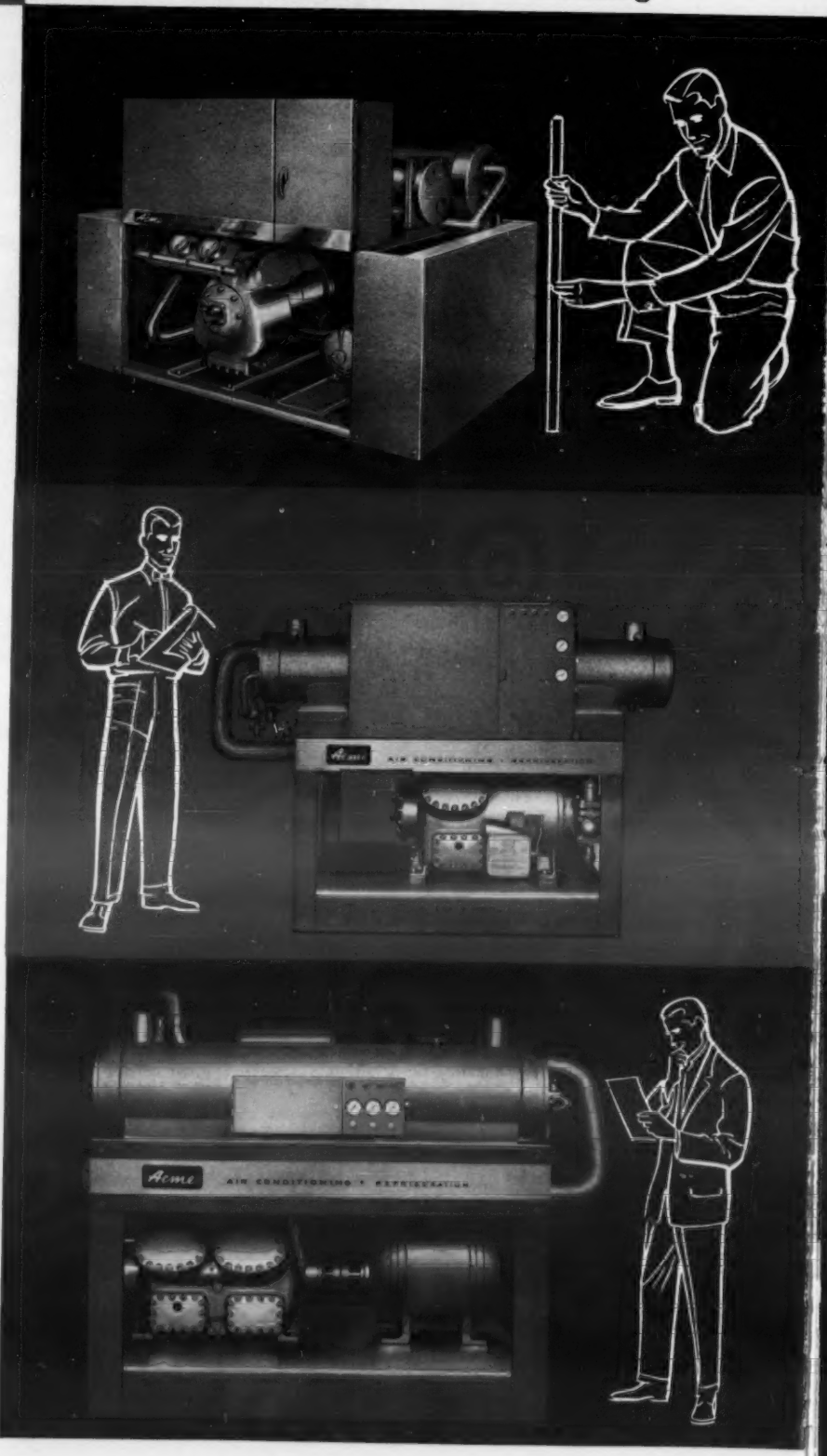
Completely wired and piped unit including controls, circulating pump and operating charge. Hermetic compressor. Extremely quiet in operation. 8 models.

HE 20 to 60 tons

Completely assembled from matched components including all internal wiring and piping, controls and gauges. Hermetic compressor. Operates smoothly and quietly. 6 models.

DE 20 to 125 tons

Factory assembled from matched components, delivered complete with motor coupled to direct drive compressor, controls mounted and wired, and holding charge of refrigerant. Starters optional. Quiet, compact, reliable. 9 models.



"In the meantime, I have conducted experiments by cutting various ammonia pipelines with pressures of less than 1 lb. and found in every case that ammonia will burn generally 12 in. to 24 in. from the cut.

"Even today it is not uncommon to hear that ammonia is not explosive. However, many ammonia explosions and fires have occurred when cutting in a new connection on the suction or discharge header. Sometimes it is a leaky valve which prevents a complete pump down.

"In the brewing industry there is always a considerable storage of CO_2, either in a liquid or gaseous state. CO_2 could be used in clearing pipe lines from ammonia gases, oil, or other non-condensable gases before applying the cutting torch.

"CO_2 also could be applied for fire fighting and dust explosions in grain silos and conveyors or wherever there is a dust problem."

Herzog commented that the frequency rate of accidents in power plants is very low in comparison with accidents in other departments in industry. However, he said, the severity of the accident and lost time rate is very high.

The 1957 safety report of the National Association of Refrigerating Warehouses stated that for every million man hours worked, one out of every four lost time accidents has been eliminated. Lost time days have been cut in half.

Herzog noted that a breakdown of the accidents in various departments showed that in the cold storage department there were 206 lost time accidents and 3,046 man days lost. The severity was 608.

In contrast, the engineering department for the same period had only 20 lost time accidents, but 6,398 man days lost, a severity of 4,876.

"These statistics clearly show the necessity of a careful study of the danger and hazards connected with the operation and maintenance of power plants, and the importance of teaching and applying safety whenever possible," he declared.

Gas-Fired Boiler Sales Climb 18%

CHICAGO—Sales of gas-fired boilers climbed 18.2% in 1958 to a new high of 128,060 units, says the Plumbing-Heating-Cooling Information Bureau.

The number of gas-fired boilers in use at the end of 1958 is estimated at 1,001,000, up 13.3%.

Amout 51.5% of the gas boilers sold in 1958 were used in new buildings or in buildings not previously centrally heated.

Controls Co. Sales, Earnings Up for Quarter

SCHILLER PARK, Ill.—Sales of Controls Co. of America are expected to exceed $45,000,000 in 1959 as against $33,000,000 in 1958, Louis Putze, president, told company shareholders at the annual meeting.

First-quarter business was strong in all the company's product lines, he said, and both sales and earnings were up sharply.

Sales for the three months ended March 31 were $12,753,655, compared with $6,308,342 in the first quarter last year. Net earnings for the first quarter 1959 were $645,778, equal to 91 cents a share, against $234,144 or 33 cents a share, including a non-recurring gain of $120,973 or 17 cents a share, for the first 1958 quarter, it was noted.

Bower To Head Mueller Brass Wholesale Sales

PORT HURON, Mich.—R. L. Gibbs, general sales manager of Mueller Brass Co., has announced the appointment of Vincent A. Bower as manager of the Wholesale Distributing Div.

V. A. Bower

Gibbs also announced these other appointments: William R. O'Reilly as district manager of the Dallas sales territory; Lawrence Faust as district manager of the Kansas City, Mo. sales territory; William Osier as district manager of the Des Moines, Iowa sales territory; and Joseph G. Strafella and K. James Lamlein as sales representatives.

Bower joined the company in 1940 and worked for a number of years in the sales department of the main office in Port Huron. Since 1953, he has been a sales representative with the Detroit office and district sales manager of the Dallas office.

Bower is in charge of the sale of plumbing, heating, refrigeration, and air conditioning products to the wholesale trade.

O'Reilly has been employed by Mueller Brass since 1941. He has had several years' experience in the sales department of the main office, and has served as a sales representative in Detroit and Cleveland.

Faust, sales representative in the Kansas City territory since joining the company in 1956, will be in charge of "Streamline" standard products to the plumbing, heating, air conditioning, and refrigeration industries, as well as brass, bronze, and aluminum fabricated and mill products in Kansas and part of Missouri.

Osier joined the company in 1953 and was connected with the sales department of the main office. Since 1955, he has been a sales representative assigned to the Syracuse, N. Y. office. In his new capacity, Osier will be in charge of similar sales in the newly-formed Des Moines territory covering Iowa and Nebraska.

Strafella has been assigned to the Syracuse, N. Y. office. He will assist Marcus Burleigh, district manager. Strafella has had many years' experience as a manufacturer's representative and purchasing agent.

Lamlein has been assigned to the Cleveland office. He will assist M. R. Pritchard, district manager. He joined the company in 1956, and since that time has been connected with the sales department at the main office and has done special sales work in Cleveland.

Temco Names Farber

NASHVILLE, Tenn. — Louis R. Farber has been appointed marketing manager of Temco, Inc., F. Donald Hart, president, announced.

Farber joined Temco in January of this year as advertising and sales promotion manager, which duties he will continue.

A full NEW line of high performance

Acme WATER CHILLERS

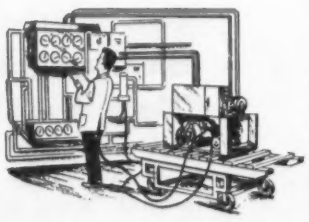
SMALLER • LIGHTER • EASIER TO USE

Here is a completely new line of Acme packaged water chillers, in a full range of sizes, which pack more capacity in less space than ever before. Size has been cut as much as 50%, weight as much as 30%, and costs have been reduced, too. Now you can have the simplicity of a completely factory-assembled packaged unit . . . the rugged reliability for which Acme equipment has always been known . . . and the smooth, quiet performance that you have always wanted—all wrapped up in a smaller, lighter, lower cost package.

These great new Acme packaged water chillers mean that you can save building space . . . cut structural requirements . . . slash installation costs while using top quality Acme equipment.

Complete Acme Systems

In addition to this great new line of packaged water chillers, Acme offers a complete range of water-saving and cooling distribution equipment for both wet and direct expansion systems. Get the full story on the new Acme Packaged Water Chiller line and on other components for a complete Acme system. Call your nearby Acme sales engineer or write directly to the factory.



EVERY UNIT TESTED AND CERTIFIED

Every Acme packaged water chiller is tested under operating conditions before shipment. Performance data is recorded on the most modern testing instruments and every machine carries a certificate guaranteeing that the unit has performed according to specifications.

Acme INDUSTRIES, INC.
JACKSON, MICHIGAN

Manufacturers of quality air-conditioning and refrigeration equipment since 1919.

ACME HAS COMPLETE SYSTEMS FOR EVERY AIR CONDITIONING NEED
Fan-and-coil remote room conditioners
Single and multi-zone air handling units
Cooling towers and evaporative condensers
Self-contained air conditioners

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Requirements of a Brine System

Brine systems are used to advantage in large installations where the danger due to leakage of the large amount of refrigerant present is important, and in rooms or series of rooms of fluctuating temperatures, according to a data book on refrigeration brine published by the Calcium Chloride Institute, Washington, D. C.

The definition brings to mind things like ice plants, large storage installations, skating rinks.

Newer uses of brines in industrial processing call for smaller systems to control temperatures of plating baths, textile solutions, cleaning tanks.

When one thinks of brine, he considers such items as heat transfer, corrosion, piping materials, freezing, chemical make-up. And he thinks not only of calcium chloride or salt brines, but of brines made up with alcohols, glycerine, glycols.

As pointed out by the CCI, a brine must meet other requirements than serving as a carrying medium for refrigeration: 1) It must remain liquid at the lowest temperature to which the brine is subjected. 2) Its corrosive effect on structural materials must be at a minimum. 3) It should not undergo any serious change in character, such as precipitation, when contaminated by a refrigerant leak. 4) It must have a specific heat sufficiently high to permit economical operation without requiring excessively large quantities of brine.

On the first point—**it must remain liquid**—Brines made by dissolving some solid in water have varying freezing points depending upon the concentration of the solid in the final solution. Specific heats and viscosities also vary, and all factors have to be considered in designing a system. It is not merely a matter of adding a little salt to the chiller water to prevent the water's freezing. Or of mixing in the desired proportion of glycol to reach a certain freeze point.

Brine must be engineered as an integral part of the system. While this is quite obvious, there are those who will add glycol to water to prevent, say, a winter freeze-up—with no thought of the reduction in refrigeration capacity as a result of the addition. This is especially pronounced in smaller chillers for residential and small commercial applications.

"Using a 50/50 glycol/water brine to protect against freezing to -25°, there is a significant loss of chiller capacity — as much as 10%—due to reduced heat transfer," reports George J. Bartosh, Minneapolis Gas Co., after a study of this phase of brine performance.

Changes in viscosity of brines, of course, affect pumping rate and efficiencies. At some temperature salt brines will begin to crystallize; at some temperatures, glycol brines will become mushy and extremely viscous. In many cases, this occurs at winter temperatures when the unit is not being used. Where this is not the case, the brine must be altered to meet the unit conditions or less frequently—it may be appropriate to alter the circulation system to fit the chosen brine.

On the second point—**corrosive effect**—The salt brines naturally tend to be corrosive; that is the nature of the material. But successful use of salt brines for years shows that the corrosivity of the solutions can be practically controlled.

An important factor in brine corrosivity is its actual make-up. There are recommended inhibiting agents and periodic tests which can assure trouble free circulation. pH of the brine must be controlled; concentrations of the brine salt itself and all additives must be rigorously superintended.

Air is a culprit in brines—either salt or glycol type. Any splashing or agitation is likely to cause the brine to pick up air. Brine pumps may take in air, a point which makes proper maintenance of glands and stuffing boxes a must.

The role of air in brine corrosion is seen from the fact that metals suspended in sea water corrode at shallow depths where the water contains air, while the same metals remain essentially unaffected at deeper levels where the water is still and unaerated.

Practically, the same result is seen in the fact that some copper base alloys which would fail in aerated brines are safely used in systems where air intake is adequately and consistently prevented.

On the third point—**change in event of refrigerant leak**—Any unintended chemical or physical change in a designed system will be harmful. The chance of precipitation or formation of deleterious substances due to refrigerant leaks is not a major concern with present brines and refrigerants.

Concerning the fourth point—**heat transfer**—This was touched upon in the discussion of point one. Flow rate is as much concerned with heat transfer of the brine as it is with friction loss and pressure drop through fittings.

From this brief look at refrigeration brines, it is obvious that the brine must be engineered as an integral part of the refrigeration system; it is asking for trouble to treat brine as something of too little importance in the total design.

POCKET MORE PROFITS WITH
Curtis
GOOD PROFIT MARGIN IN THE LUXURY LINE WITH "GOLDEN SILENCE" CIRCULATION
EVAPORATIVE CONDENSERS, COOLING TOWERS AND AIR HANDLING UNITS UP TO 100 TONS
PACKAGED AIR CONDITIONING UNITS 3 THRU 100 TONS
PACKAGED LIQUID CHILLERS 7½ TO 100 TONS WITH SEMI-HERMETIC COMPRESSORS
CONDENSING UNITS UP TO 100 TONS—F-12 OR F-22
PACKAGED AIR COOLED SPLIT SYSTEMS, THROUGH 10 TONS
All CURTIS air conditioning equipment is priced for profit—competitive prices on all units include a generous profit margin for you. Curtis "packaged" air conditioning equipment is all factory assembled and factory tested—it is easy to sell . . . easy to install.
THE BALANCED COMPONENTS in each CURTIS air conditioner assure a minimum of maintenance, quiet operation and maximum cooling efficiency.
Sell the nationally advertised line that sells itself.
CURTIS AIR CONDITIONS AMERICA
C-77
Curtis
MANUFACTURING COMPANY
REFRIGERATION DIVISION
OUR 105th YEAR
WRITE DEPT. 1, ST. LOUIS 20, MISSOURI

Case Histories Show Effectiveness of 'Mogul Kwik-Kleen'

CLEVELAND — Case histories said to show the effectiveness of "Mogul Kwik-Kleen" in the removal of scale from water-using equipment have been compiled into a handy volume by the manufacturer, The North American Mogul Products Co. here.

According to these reports, "Mogul Kwik-Kleen" is a safe non-toxic material which, when applied to water at about 150° temperature, frees tough scale deposits within a few hours.

Further details and a copy of these case histories may be obtained by writing The North American Mogul Products Co., Standard Building, Cleveland 13, Ohio.

8 Outdoor Thermostats To Automatically 'Mastermind' 1,710 High-Velocity Heating-Cooling Window Units

NEW YORK CITY — The 1,710 high-velocity heating-cooling window units in the new 24-story Prudential tower, now under construction in Newark, will all be "masterminded" automatically by eight outdoor thermostats—two each on the north, east, south, and west faces of the building.

Indoor thermostats will control a related low-pressure heating-cooling system, using ceiling ducts, which will serve the central area of each floor.

Earl H. Norem, executive vice president and officer-in-charge of the project for Vermilya-Brown Co., the general contractor, said that for heating and cooling purposes, tenancy space of the building is divided into a lower section, which includes the second to fifteenth floors, and an upper section, comprising the sixteenth to twenty-fourth floors.

The perimeter of each section is divided into four segments, each consisting of all the windows facing one compass point.

An outdoor thermostat on each of the four sides of the eighth floor will control all the window units of the lower section facing its point of the compass and an outside thermostat on each of the four sides of the penthouse will do likewise for the window units of the upper section, it was pointed out.

Norem said the installation is a recirculated closed circuit system. He explained that the heating or cooling is accomplished by blowing air over coils through which hot water flows in winter and chilled water in summer.

"Each outdoor thermostat, reacting to the temperature on its side of the building, activates automatic control dampers, valves, pumps, heating and cooling coils, and spray humidifiers to produce proper office temperature and humidity."

"The refrigerating equipment required to provide the chilled water for the cooling cycle for the entire 24 floors consists of three 800-ton and two 310-ton refrigerating compressor units totaling 3,020 tons, with provision for a future 800-ton compressor unit; four chilled water pumps with a total capacity of 8,600 g.p.m. and three condenser water pumps with a total capacity of 9,600 g.p.m. and one standby of 3,200 g.p.m.; a four-cell cooling tower unit having a total capacity of 11,500 g.p.m. with a temperature range from 95° F. to 85° F.

"Eight pumps having a total capacity of 1,900 g.p.m. with two standby pumps having a total capacity of 745 g.p.m. will circulate the chilled water and hot water to the window units.

"Nine air conditioning fan units having a total capacity of 364,000 c.f.m. will deliver tempered air to the window units and the ceiling outlets and first floor banks and shops. Seven return fans having a total capacity of 246,800 c.f.m. of return air from these spaces will be recirculated or exhausted as temperature conditions require.

"Eight general supply fans with a total capacity of 181,800 c.f.m., with heating coils, and 15 exhaust fans having a total capacity of 236,200 c.f.m., will provide ventilation for spaces not air conditioned."

Voorhees Walker Smith Smith & Haines, architect for the Prudential tower, designed the heating-cooling system.

Little Rockers Warned

LITTLE ROCK, Ark. — All steam plants and refrigeration equipment operators have been warned by the Little Rock Board of Stationary Engineers to get their licenses from the city collector to avoid penalty.

Under a recent ordinance, operators of steam boilers having a capacity of 15 lbs. or more and refrigeration equipment or air conditioning plants of 25 tons or more must have licenses. The penalty for non-compliance is $25 and each day is a separate offense.

Grocery Distribution Center Features Cooling

ST. LOUIS—Air conditioning will be one of the features of a huge new distribution center and general offices for Wetterau Grocer Co., Inc., at 7100 Hazelwood Ave. in Hazelwood.

The building, with a total area in excess of 230,000 sq. ft., is scheduled for completion by the end of the year.

The produce areas will be air conditioned. The frozen food area of 5,000 sq. ft. will be held at 0° at all times.

Simpson Electric Buys Case Bldg.

CHICAGO — J. Whiteside, president of Simpson Electric, Div. of American Gage & Machine Co., announced the purchase of the Case Co. building in Elgin, Ill.

This building is presently occupied by Elgin American, Inc. which plans on continuing its operation there.

The new Simpson Electric Co. building with over 250,000 sq. ft. of office and production space was purchased from the Gerland Industrial Properties, Inc. for gradual future expansion.

You don't have to clean out scale like this...

CALGON® ECONOMY POWDERED ACID IS SAFE!

Specially formulated for *safe, low-cost* cleaning of cooling water systems. When economy and safety are prime considerations, get Calgon Economy Powdered Acid from your Refrigeration Wholesaler.

CALGON COMPANY

DIVISION OF HAGAN CHEMICALS & CONTROLS, INC.

HAGAN BUILDING, PITTSBURGH 30, PA.

In Canada: Hagan Corporation (Canada) Limited, Toronto

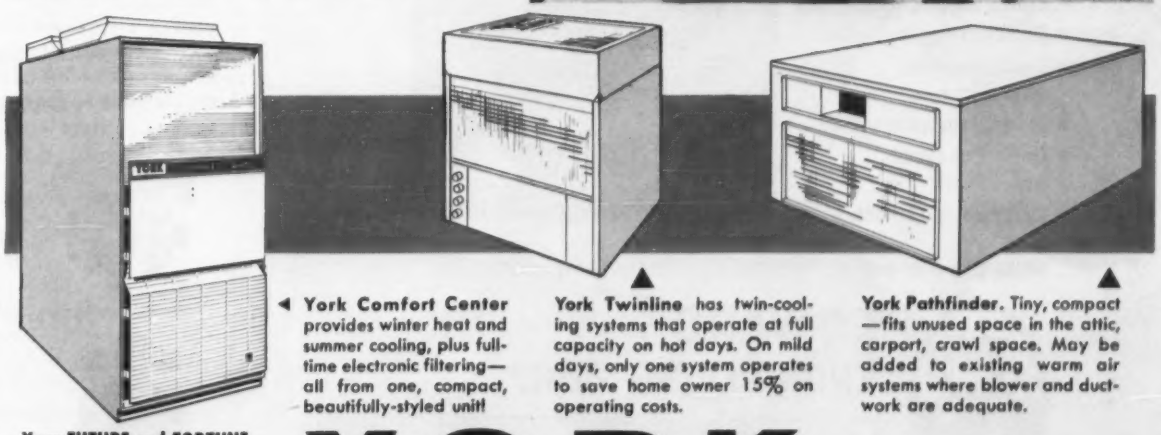
Now! It's Paar for YORK

—in a coast-to-coast hookup that links America's No. 1 TV personality with America's No. 1 residential air conditioners!

Over 7,500,000 viewers of over 70 local stations will see and hear Jack Paar sell YORK on NBC-TV—during the height of your selling season!

May 13th is tee-off time! That's the date Jack Paar, Hugh Downs & Co. launch the TV portion of the greatest York Residential Air Conditioner advertising and merchandising program of all time! Tune in...see all the hard-hitting, hard-selling commercials yourself...just as millions of prospects for central air conditioning will do in the privacy of their own living rooms. All America will know—"York is America's No. 1 Residential Air Conditioner Buy for '59!"

National Magazines also carry the York Blue Chip sales story to customers—with 2-color, page and spread ads in American Home, House Beautiful, House & Garden, Newsweek, U.S. News, Business Week and Fortune. Tie in for Blue Chip sales and profits!



◄ **York Comfort Center** provides winter heat and summer cooling, plus full-time electronic filtering—all from one, compact, beautifully-styled unit!

York Twinline has twin-cooling systems that operate at full capacity on hot days. On mild days, only one system operates to save home owner 15% on operating costs.

York Pathfinder. Tiny, compact—fits unused space in the attic, carport, crawl space. May be added to existing warm air systems where blower and duct-work are adequate.

Your FUTURE and FORTUNE Now Lies With YORK

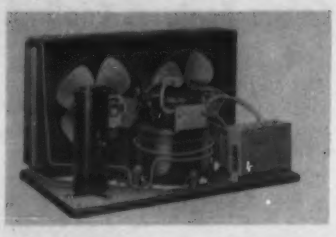
YORK

YORK CORP., SUBSIDIARY OF BORG-WARNER CORP., YORK, PA.

BW BORG-WARNER RESEARCH & ENGINEERING MAKE IT BETTER

Air Conditioning, Heating, Refrigeration and Ice Making Equipment • Products for Home, Commercial and Industrial Installations

Air-Cooled Condensing Units Are for High Temps



● Two new air-cooled condensing units for air conditioning or other high temperature applications have been announced by Tecumseh Products Co., Dept. AH&RN, Tecumseh, Mich.

Model PFB400HT (4 hp.) and model PFB500HT (5 hp.) are each available for 230 volt, single phase and 220/208 volt, three phase.

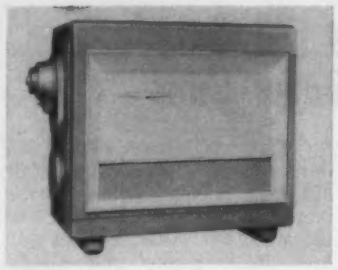
Both incorporate four cylinder external mount, Refrigerant-22, heat pump compressors which feature direct suction cooling. The direct suction cooling not only reduces motor heat but also acts as a built-in low side oil and liquid separator, minimizing the possibility of slugging, according to the company.

Special features include a 24-volt contactor holding coil and a built-in time delay relay for thermostat operation. The three-phase units also include Heinemann circuit breakers.

In 90° ambient with a 40° evaporator, model PFB400HT delivers 48,000 B.t.u. and model PFB500HT delivers 62,000 B.t.u., Tecumseh said.

Want More Details?

ADDITIONAL details on products that are described on these pages may be obtained by writing the manufacturer at the address given in each What's New story.



Duo-Therm Home Heater Line Redesigned

● The entire 1959 "Duo-Therm" line of home heaters has been redesigned in new, modern lines and colors, according to Motor Wheel Corp., Dept. AH&RN, Lansing 3, Mich.

The line features oil and gas heaters of from 27,500 to 75,000 B.t.u. heating capacity. New Duo-Therm oil and gas furnaces also figure in the style up-dating.

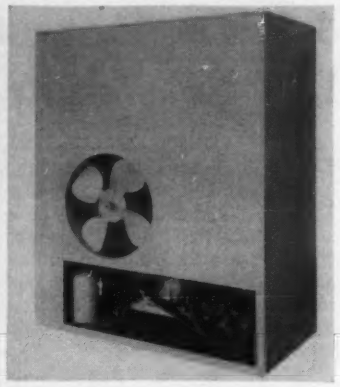
Insulation Claims Low Thermal Conductivity

● "Extremely low thermal conductivity" is claimed for its rigid foam pipe insulation, pre-molded rigid polyurethane pipe insulating material by Baldwin-Hill Co., Dept. AH&RN, 500 Breunig Ave., Trenton, N. J.

The new material is specifically designed for low temperature application down to -300° F.

"A U. S. Testing Laboratory report indicates that at a mean temperature of zero (0°) degrees Fahrenheit it has a K-factor of only .096 B.t.u. per sq. ft., hr., deg. F.," it was pointed out.

The insulation is currently available in all standard IPS sizes from ½-in. to 12-in. diameter. Additional sizes will be available soon. Thicknesses range from ¾ in. to 2½ in. in ½-in. increments and the molded pipe half-sections are 3 ft. long.



400-Cycle, 3-Phase Motor Powers Unit

● Air conditioning units powered by 400-cycle, three-phase induction motors are now being produced by Ellis & Watts Products, Inc., Dept. AH&RN, 8407 Monroe Ave., Rossmoyne, Ohio.

The 400-cycle motors used in these units, manufactured by the B. A. Wesche Electric Co., Dept. AH&RN, 9027 Shell Rd., Blue Ash, Ohio, have full-load speeds comparable to 60-cycle motors so that they can be applied without gearing at r.p.m. speeds of 3,850, 3,320, 2,580, and 1,880, according to the announcement.

REPRINTS
SELLING FOR PROFIT.
By Frank Klein—Only $1.00 ea. Clip this ad and mail with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

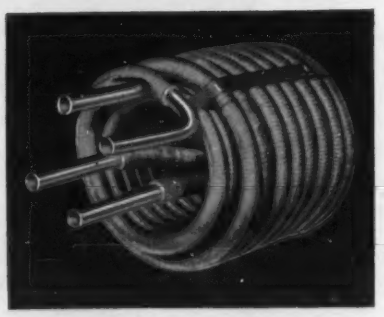
EDWARDS

REFRIGERANT CONDENSERS COST LESS, REDUCE MAINTENANCE COSTS.

Hundreds of thousands of Edwards Refrigerant Condensers have already been installed by the biggest names in Air Conditioning and Refrigeration... here's why.

EDWARDS FINNED TUBE CONDENSERS

- Lower initial cost
- Less copper per BTU of heat transfer
- Low water pressure drop
- Less circuiting
- More compact condensers
- More durable construction
- Longer trouble-free operation
- Lower maintenance costs



EDWARDS CO-AXIAL CONDENSERS

- Reduce condenser water 35%
- Reduce cost 30% to 40%
- Reduce refrigerant charge
- Reduce shipping weight
- Reduce cooling tower size
- Stabilize capillary performance
- Compact shapes available
- Continuous circuits without joints
- Simplified connections

Write today for extensive technical literature and further information.

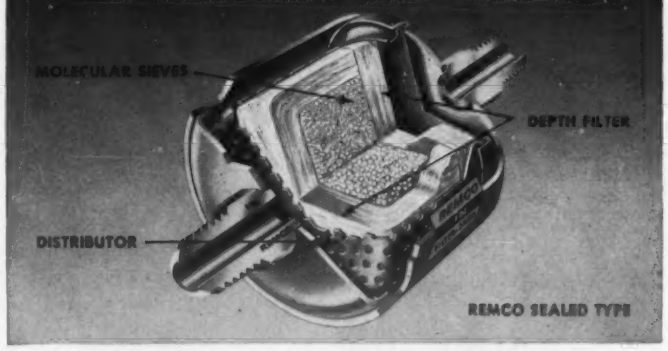
EDWARDS ENGINEERING CORP.

MANUFACTURERS OF AIRVEC...
The convection air-cooled condenser that eliminates fans, motors, noise, and maintenance. Catalog AV-2

914 Alexander Ave., Pompton Plains, N. J. • TEmple 5-2808

REMCO

MOLECULAR SIEVE FILTER-DRIERS IN ½ thru 40 tons



Only Remco offers so wide a selection of sizes and types

Fast-acting Molecular Sieves keep system moisture concentration to 10 ppm or lower even at 140°F, and hold acid to far below dangerous corrosion limits. Massive depth filter removes all scale, sludge and carbon as small as 10 microns. Remco Filter-Driers work equally well in the hot machine compartment or the refrigerated space. U/L Approved, working pressure is 500 psi; minimum bursting pressure, 2500 psi.

Replaceable Cartridge Type

Adapter Type with moisture-liquid-indicator adapter fitting

SEALED and REPLACEABLE CARTRIDGE TYPE Filter-Driers are available in ½ thru 40 tons, with ¼" thru 1⅝" flare or sweat connections.

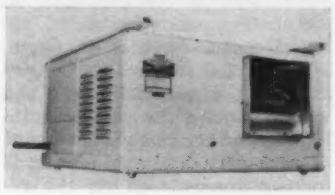
ADAPTER TYPE Filter-Driers, ½ thru 12 tons, connect easily to Remco adapter fittings which are installed permanently in line. Adapter fittings have ¼" thru ⅝" flare or sweat connections; available with integral liquid-indicator or moisture-liquid-indicator.

All Remco Molecular Sieve Filter-Driers and adapter fittings have full refrigerant flow. Ask for them at your local refrigeration wholesaler's, or write for Bulletin MS-1. Remco, Inc., Zelienople, Pa.

REMCO

REMCO ADVANCED REFRIGERATION COMPONENTS:
Filter-Driers · Liquid Indicators · Receiver-Driers · Check Valves · Safety Devices · Frost-Tite Flare Nuts

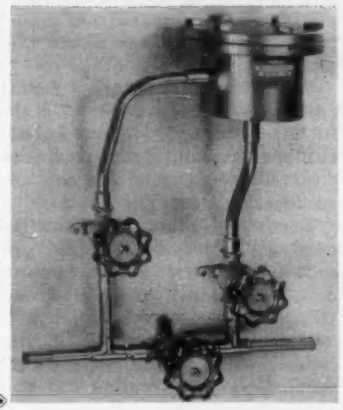
Recold Offers Series of Cutting Room Units



● A new series of cutting room units for Refrigerant-12 and 22, in six sizes and rated from 2 through 5 tons, has been announced by Recold Corp., Dept. AH&RN, 7250 East Slauson Ave., Los Angeles 22.

The white baked enamel units are designed to maintain 50° to 55° F. temperature in meat cutting and packaging rooms in supermarkets and warehouses. They may also be installed outside and ducted into the cutting room.

The units, the company said, incorporate such features as Recold's patented "Corner Construction" for complete accessibility; heavy duty mounting channels; galvanized wheels and scrolls; cleanable filters on the air inlet; motor and driver separated from the air stream; and housing completely insulated with 1 in. insulation.



Flake Ice Machine Offered In 2 Sizes

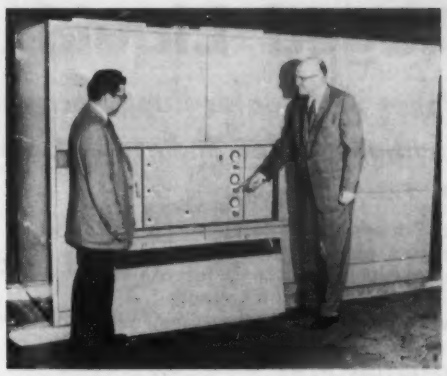
● Existing storage bins, insulated soft drink coolers, etc., in restaurants and fast-food service establishments can be filled with ice at a cost of less than 10 cents per 100 lbs.—with the compact new Helmco-Lacy flake ice machines, claims Flake Ice Machines, Inc., Div. of Helmco-Lacy, Dept. AH&RN, 7400 W. Lawrence Ave., Chicago 31.

Small size, 14 in. by 16 in. by 20 in., makes it possible to mount the flake ice makers on top or side of any bin, the company said. Detachable ice chutes can be positioned for either type of installation.

"Two models of Helmco-Lacy flake ice machines are available: FL-100 which makes 96 lbs. of ice per day at the rate of 4 lbs. per hour with room temperature of 90° F., water temperature of 70° F. (ASRE test standard), and FL-200 which produces 192 lbs. per day at the rate of 8 lbs. per hour," the announcement said.

"Both machines make hard, dry individual flakes of ice that are long-lasting in storage, uniformly clear—and will not cloud in water or beverage. Ice production up to 5 lbs. per hour with the FL-100 and 10 lbs. per hour with the FL-200 can be expected with lower room and water temperatures."

Design-coordinated ice dispensing units are available to sell in combination with the Helmco-Lacy flake ice machines.



COMPLETE one-side accessibility features of the new Acme Model PAC packaged air conditioners are pointed out to H. W. Smith, Acme Industries advertising manager, by R. C. Robertson, director of sales. The new Acme unit has all controls and maintenance points on one side of the unit so that it may be installed close to a wall; yet all components are fully enclosed and protected during operation, according to Acme Industries, Inc., Dept. AH&RN, Jackson, Mich.

Filter-Drier By-Pass Assembly Developed

● Development of a new filter-drier by-pass assembly for use by air conditioning and refrigeration contractors and dealers was announced by Remco, Inc., Dept. AH&RN, Zelienople, Pa.

Its major purpose is to provide as a compact assembly, a Remco replaceable cartridge type filter-drier, piping and valves which permit replacement of the molecular sieve cartridge without shutting down the refrigerant system.

"The assembly uses a molecular sieve desiccant combined with massive depth filtration," it was pointed out. "Major advantage of this factory assembled by-pass system is uniform quality. Cost is actually less in many instances than the time required to make such an assembly on the job.

"Each assembly includes a bracket, so that the whole assembly can mount flush on a panel and the top flange may be removed without demounting the drier, since the bracket provides adequate clearance."

The assembly is offered at the present time for line sizes of ⅜, ½, and ⅝ in., and has drying and filtering capacities equal to Remco's 250-RC and 300-RC cartridges.

You can't "jail" rust and scale...

But you can stop them with

MICROMET® PLATES

Easy-to-use, low in cost, one charge of Micromet Plates will protect most systems against scale and corrosion for six months. Recommended by leading equipment manufacturers. Get Micromet Plates today from your Refrigeration Wholesaler.

CALGON COMPANY

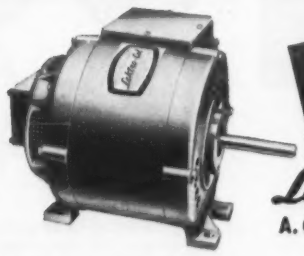
DIVISION OF HAGAN CHEMICALS & CONTROLS, INC.

HAGAN BUILDING, PITTSBURGH 30, PA.

In Canada: Hagan Corporation (Canada) Limited, Toronto

OVER-THE-ROAD REFRIGERATION!

Now! Convert your fleet at low cost!



NEW!

DOLE Lektro-Cel

A. C. GENERATOR KIT

- Your present plug-in refrigeration can now be used for Over-The-Road operation.
- Power also available for heating, auxiliary lighting, pumps, etc.
- Kit furnished complete with all necessary parts for ease of installation.
- Low in cost, easily maintained.

DOLE REFRIGERATING COMPANY

5920 NORTH PULASKI ROAD, CHICAGO 46, ILLINOIS

103 PARK AVENUE, NEW YORK 17, N. Y.

In Canada: Dole Refrigerating Products Limited, Oakville, Ontario

Write for Engineering Catalog HGE

DOLE THE OIL LINE

Lektro-Cel

COMPLETE REFRIGERATION SYSTEMS ALSO AVAILABLE

Get out of that DILEMMA!

PRIMORE

ROTALOCK and BREAK-AWAY

VALVES

will help you!

ROTALOCK valves are designed for use on compressors, receivers or condensers. The Rotalock can be rotated a full 360° allowing the valve to be positioned in direction of tubing. Eliminates short or compound bends. The flexibility, simplicity and economy of Rotalock makes for fewer bills of material, easier ordering and smaller inventory.

Rotalock valves feature the highly effective Teflon Fiber Seal for more positive sealing at all times.

Seal may be used over and over without affecting its sealing properties.

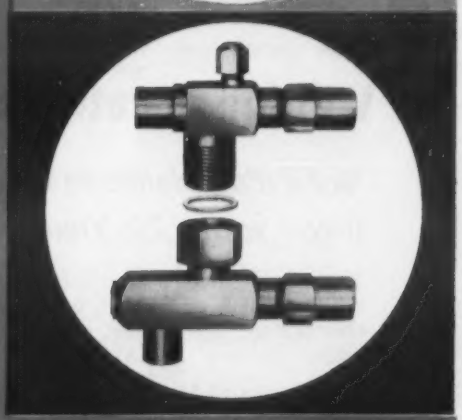
Connector Sizes: ⅜, ½, ⅝, ¾, ⅞, 1⅛ and 1⅜ in.

BREAK-AWAY valves assure a fast, positive connection of tubing from evaporator to condenser unit. Evaporator, condenser and interlocking tubing can be completely pre-charged, eliminating all field installation problems.

Straight and angle, sweat or flare, adapters available if pre-charged tubing is not desired.

All couplings feature a Teflon Fiber Seal for best sealing qualities available.

Connector Sizes: ⅜, ½, ⅝, ¾, ⅞ and 1⅛ in.



Write for FREE Illustrated Catalog showing complete line of refrigeration shut-off valves.

Over 15 years of Research, Designing and Manufacturing of quality valves.

THERE'S NO SUBSTITUTE FOR EXPERIENCE!

Primore Sales, Inc.

2460 South Main Street • Adrian, Michigan

Packaged Liquid Chillers

Deke Jones Anticipates Rapid Increase In Their Use In Air Conditioning New Industrial, Commercial Buildings

By Frank J. Versagi

DETROIT—The use of liquid chillers in new construction air conditioning is due for a rapid increase, according to Deke Jones, president of Deke Jones Co., here.

Deke should know. He has been in on the installation of over 100 chillers in the last four or five years, and has already sensed what he terms "the increasing popularity of chiller systems among architects and mechanical contractors."

Recalling that chillers began as small things—up to 7½ tons—for industrial processing, Jones predicts that the new package units can handle up to 300-ton loads "using two 150-ton jobs each containing two 75-ton compressors."

Interviewed by the NEWS, Jones offered a broad view of liquid chiller applications and problems.

The mechanical contractor has been noted in the past for his readiness to farm out air conditioning to the refrigeration contractor. Why his interest and use of the package chiller?

Primarily because the steamfitters and plumbers with whom he is accustomed to work can handle installations of chillers. All the connections between a chiller, a water tower, and supply, for example, can confidently be handled by a plumber. A refrigeration man is needed only to start up the compressor and chiller system.

You specified new construction when you spoke of the increasing use of chillers. What about modernization?

Nothing will outdo the conventional package air conditioner for flexibility and performance on most modernization jobs.

Will smaller packaged chillers make any impact on the residential market—similar to that being made by smaller boilers and radiant heating systems?

No. Residential cooling will always consist of a cooling coil in the bonnet of a furnace, with a small air-cooled condensing unit somewhere in the back yard. This is certainly the simplest and least expensive way; there is no need to go to any other.

On a commercial or industrial air conditioning application, how does a chiller installation compare with traditional direct expansion?

In this regard, the liquid chiller presents a forward step in the industry. The packaged chiller has definitely reduced the cost of refrigeration per ton on an installed basis.

Recently I had occasion to compare a job quoted first as a condensing unit with a remote coil, then as a liquid chiller. In this case the direct expansion system cost as much as the liquid chiller even before the cost of necessary piping was included.

What about operating cost?

This resolves itself into maintenance cost, and this cost is much less on chillers than on direct expansion systems. A major reason for this, of course, is that the chiller is factory built and assembled. Every one which reaches the field is quite like any other one; the amount of necessary field engineering is low or non-existent on the refrigeration cycle.

We have experienced much less field difficulty on our 100-odd chiller installations than on a similar number of direct expansion units.

And improvements in liquid chiller performance have continued. For example, we were in on most of the skating rink equipment in the city of Detroit. Formerly this work was built-up jobs in the field. Equipment was considerable and so were problems. Things like compressor-slugging.

About two years ago, I sold two Worthington units for a Kalamazoo skating rink—two package chillers from the factory, each having two 60-hp. compressors. We have had no trouble at all with the refrigeration equipment. Comparing that record to our service problems on the Detroit jobs—well, there is no comparison.

With package chillers, old and new, what are the major problems characteristic of the products?

Compressor problems come to mind. In the old days, it was too frequent an occurence for liquid refrigerant to slug into the compressor and reach the valves. I'd guess that 99% of the old troubles were with compressors.

But newer compressor designs, like those of Carrier—Westinghouse has had some for quite a while—and a new one from Worthington, make it almost impossible for a slug to reach the valves. This will eliminate the major difficulty we had

BEFORE YOU BUY, THINK:

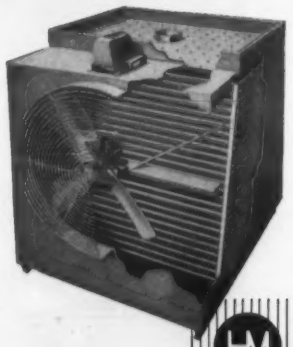
Will fungus attack your cooling tower 2 years from now?

Not if it's a Halstead & Mitchell cooling tower with a 20-Year Guarantee

The specially treated wood decking in H&M towers resists rotting, fungus attack and algae which accumulates and obstructs air flow in most other towers. Performance remains "like new" in H&M cooling towers year after year.

Only Halstead & Mitchell offers a 20-Year Guarantee on the wetted deck against failure due to rotting or fungus attack.

Other H&M features for unusually low maintenance include permanently sealed fan bearings, and a heavy gauge steel cabinet protected against corrosion by three plastic coats applied *after assembly*. Be sure. Ask your local wholesaler for H & M towers, or write to Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.



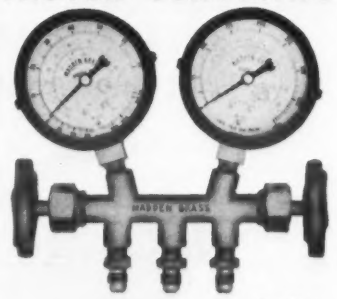
H & M COOLING TOWER WITH PRESSURE TREATED DECKING

HM Halstead & Mitchell

Water-Cooled Coldensers · Cooling Towers · Air-Cooled Condensers · Finned Coil Products

NEW

...FOR EASIER FASTER SERVICING



Pat. Pending

Designed for convenient charging, purging, testing etc., this new compact unit features an all brass forged body, easy-grip hand wheels, Teflon packing and seat for positive shut-off. Equipped with dual scale 2½-inch pressure and compound gauges. Hose connections ¼-inch male flare, gauge connections ⅛-inch female pipe thread.

HANDY HOSE HOLDER

Attaches to back of testing unit so free end of hoses can be conveniently coupled when not in use. Keeps them dry and free from dirt.

SEE YOUR **MADDEN** WHOLESALER

MADDEN BRASS PRODUCTS COMPANY
AURORA 6, ILLINOIS, U.S.A.
EXPORT: Ad Auriema 85 Broad St., New York, N. Y.

with old liquid chillers. From my experience, I'd say we're through with that problem.

What is the major problem in installation of liquid chillers?

Variable load. Attempting to operate a 50-ton unit on a 5-ton load. Then we have troubles —things like freeze-ups. One approach to this problem which I recommend is the use of multiple compressors—two 25's on a 50, two 50's on a 100, and the like. Of course, efficient operation at varying loads presupposes correct design of the entire system.

What about the chiller itself—flooded and direct expansion; is there a trend?

Not yet; it will be interesting to see which way this goes. Although most are based on direct expansion, there are definite advantages in some circumstances in using the flooded chiller. York, for example, has stuck with the flooded type.

For brine work, where momentary freezing is not a problem, I feel that flooded chillers are most efficient because of the high rate of heat transfer between the liquid refrigerant and the tubes carrying the brine.

For water work, recent improvements in expansion valve design have made direct expansion chillers more applicable. Alco's pilot-operated expansion valve comes to mind. As does the technique of placing the expansion valve bulb in a well *inside* the suction line.

What about the problems of freeze-ups?

I solve them all by using glycol in the brine system. With glycol you don't have to drain lines, don't have to worry about liquid freezing in a unit when cold outside air passes over it. Some feel that the viscosity of glycol brines at low temperatures is a problem. I have found that viscosity is no problem at all in the 40's, and you don't circulate brine in colder winter temperatures.

How about humidity control with package chillers?

Actually, it is easier to control humidity with a liquid chilling system than with a direct expansion system. You can bring liquid down to level needed for the dehumidifying.

If you want dewpoints in the neighborhood of 55-60°, say, this is rather difficult to do with direct expansion because 3 or 4 p.s.i. pressure difference can cause your coil to freeze. It is much easier to control and hold liquid temperatures in the coil.

You'll have the
SALES
Advantage
when you cash in on the 100 to 500 pound
FLAKED ICE MARKET
WITH
ROSS temp
AUTOMATIC
FLAKED ICE MACHINES
ROSS-TEMP, INC.
Subsidiary: Schneider Metal Manufacturing Co.
1805 S. 55th Ave., Chicago 50, Ill.
Some territories still available.
Write for demonstration details.

EEI Report Covers 'Weather Data for Humidity Control Air Conditioning'

NEW YORK CITY — The Electric Space Heating & Air Conditioning Committee of Edison Electric Institute has issued a 32-page report entitled "Weather Data For Humidity Control Air Conditioning."

This new publication is a compilation of weather data for various areas of the nation served by some 20 investor-owned electric light and power companies. Figures are given for both the heating and cooling seasons, showing average mean temperatures, dewpoint, humidity, etc.

The purpose of the report, according to the committee's chairman, L. E. Blades of Arkansas Power & Light Co., is to explore the undeveloped field of air conditioning by a comparison of significant weather data.

The committee points out that the air conditioning market holds great potential for increased electric energy sales and believes the report will be of value to electric power companies and others interested in the development of this vital market.

A summary included in the report points out that there is a potential market for air conditioning equipment in the less humid areas, in the higher altitudes, and in the normally cooler northern sections of the country, if cleanliness as well as the temperature and humidity control aspects are stressed, while the existing and future markets for humidity control air conditioning in the warmer and more humid areas are tremendous.

Copies of the newly-published report are available from Edison Electric Institute, 750 Third Ave., New York 17, N. Y., at $1 per copy for EEI member companies and $1.50 per copy for others.

Glen Alden Elects List and McClintock

NEW YORK CITY—Electing a new slate of officers following its merger with List Industries Corp., Glen Alden Corp. named Albert A. List chairman and president and Gilbert S. McClintock vice chairman.

Elected vice president were six operating heads of divisions or subsidiaries of Glen Alden, including Benjamin R. Ebersman, president of the corporation's Mathes air conditioning division.

Weksler Instruments Honors 3 Executives At Testimonial Dinner

FREEPORT, N. Y.—Weksler Instruments Corp., designer and manufacturer of indicating and recording instruments for temperature, humidity, and pressure, honored three company executives with a testimonial dinner recently, it has been announced.

Harry Weksler, chairman of the board and founder of the company, was honored by his friends, associates, and employes for his many contributions during 50 years of service to the instrument industry. Joseph Bakofin, vice president in charge of production, and Frank J. Pla, vice president in charge of sales, were also honored. They each have served 25 years in this field.

Announcing...

the '59 Lehigh line of Hermetic Condensing Units

Any size ⅓—2 h.p. for any medium and low temperature application. Air-, air-water and water-cooled models. Greater Capacity Per Dollar!

Lehigh's '59 model hermetic condensing units are engineering-new in design—rugged enough for remote heavy duty application, yet small enough for package units. They combine all the cost advantages of a completely sealed motor compressor plus the operating advantages of remote installations—with greater capacity per dollar.

Open Type Condensing Units, too—rated the best quality buy for your most rugged applications. Compare their capacity—then compare the price. Write for literature.

Name your need—there's a new Lehigh Condensing Unit or Compressor to fit it.

Send for new 4-page Catalog Sheet.

Ask us about *our new line of liquid receivers—from 5" to 12" diameter—for wholesalers and original equipment manufacturers.*

LEHIGH

LEHIGH MANUFACTURING COMPANY, Division of Lehigh, Inc., Easton, Pa.
Manufacturers of Hermetic and Open Type Condensing Units; Compressors and Liquid Receivers.

Lehigh BLU-COLD

all new Lehigh blu-cold condensing units

Heating & Cooling with Water

Results of Research over Past 18 Years Summarized In U. of Illinois Report

A cooperative research program in steam and water heating and summer cooling has been carried on at the University of Illinois since 1940. This program has been carried out under the terms of a cooperative contract between the Institute of Boiler & Radiator Manufacturers and the University.

A summary outline of some of the results of the research has been compiled by W. S. Harris, M. D. Eide, and R. D. Barkman of the University of Illinois. Since this concise and informative material might prove useful to those involved in installations of this type of equipment, the summary has been published in a series which has been running intermittently since Oct. 6, 1958 in the NEWS. This is the conclusion.

Chilled Water Systems

1. Object: To compare the effect on performance of different operating methods using several types of chilled water cooling systems.

Note: During the summers of 1953 and 1954 the Research Home was cooled using combination heating and cooling units in each room. The same piping system was used to circulate hot water from the boiler to the units for winter operation and chilled water from the water-cooled water chiller to these same units during summer operation. The room units used during the first summer were of larger capacity than those used the second summer, but both were the same as far as principle of operation was concerned.

The cooling equipment used in the Research Home during the summer of 1955 was completely separate from the heating system. Two chilled water fan-coil units were used, one serving each story of the house. These units were connected to an air-cooled water chiller by a simple piping system independent of the heating system.

2. Results:

a. With a maximum outdoor temperature of 100° F., the measured maximum sensible cooling load was about 17% less than the maximum sensible load determined by conventional methods of estimating.

b. Most of the differences between the estimated and observed maximum cooling loads could be attributed to the method of estimating heat gains through glass areas.

c. In estimating instantaneous cooling loads it is assumed that all radiant energy transmitted through glass is immediately available to heat the air in the room. Actually, it first heats objects in the room, and they in turn heat the room air by convection. This results in a time lag and a reduced rate of heat release to the air.

d. As long as room doors were not closed, a satisfactory cooling job was done in the entire Research Home by operating only two or three units.

e. With the type of equipment used in these tests, the installation of room units having a cooling capacity in excess of the maximum required decreased the quality of performance from the standpoint of comfort and frequently increased the cost of operation.

f. For satisfactory results the capacity of the water chiller must be sufficient to quickly reduce the temperature of the water to the minimum value.

g. A cooling system having a total cooling capacity of only 10,800 B.t.u.h. successfully maintained indoor temperatures in the Research Home below 80° F. with an outdoor temperature in excess of 105° F. even though the calculated heat gain of the Research Home was 17,962 B.t.u.h. with an outdoor temperature of 95° F.

h. Cooled air from room units located on or near the floor should be projected upward toward the ceiling to prevent stratification and the resulting "pool" of cool air at the floor with little cooling at the higher levels.

i. Opening windows at night had no effect on the maximum cooling load, but except for a very few days in Urbana, this practice resulted in equal or better comfort conditions in the house than obtained by operating with windows always closed.

j. Opening windows at night reduced the cost of operation by as much as 50%

k. Ventilating the attic during the day did not reduce the load sufficiently to affect the operating cost, but it did reduce the maximum second-story air temperatures by 3° to 4° F.

l. Opening windows at night and using an attic fan to draw outdoor air through the house had the same effect on operating costs as did opening windows at night with no use of an attic fan.

m. Using an attic fan at night reduced the room-air temperature to within about 2° F. of the outdoor temperature within one hour. About 6 hours were required by natural ventilation through open windows. Air movement produced by the fan created some additional "cooling effect."

n. Continuous operation of a kitchen exhaust fan having a free air delivery of 430 c.f.m. increased the maximum cooling load by about 25% and increased the daily cost of operation by about 10%.

o. The room units designed for both summer and winter operation maintained satisfactory room-air temperature and humidity during the summer, but winter performance was not as satisfactory as the performance of a hot water baseboard heating system.

p. The summer performance of the fan-coil system was comparable to that of the combination room units. The fan-coil cooling system did not affect the performance of the heating system used.

q. Continuous circulator operation as opposed to intermittent circulator operation gave a lower indoor relative humidity and decreased the fluctuations in indoor relative humidity with less operation of chiller.

(The End)

and the **THERMATROL**
Package Liquid CHILLERS
which Air Condition this beautiful
11 story Gold Coast Hotel

Equipped with one 240 H.P. Quad—one 150 H.P. Dual and one 60 H.P. single unit as shown.

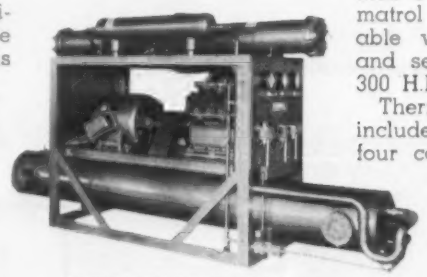
NEW—because Thermatrol package chillers are now available in complete packages up to 300 H.P.—making it possible for the engineer to combine the advantages of former multiple—remote installation—and the great savings, safety and factory responsibility of the package, since these are built to exact load conditions and specifications.

The advantages of multiple compressors are well known—and in this hotel—except at peak condition the load is carried during most of the time by two or three motors and compressors, effectively reducing current and demand loads.

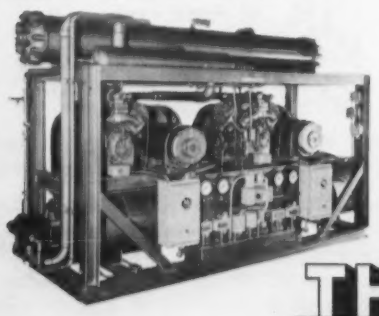
450 H.P. of Package Chillers

The substantial savings on original cost, against centrifugal, plus the low operating cost, and assurance of constant air conditioning even under hazards—were the important factors in the decision of the owners—to use this method of air conditioning their Ocean Manor Hotel — Schnacke Thermatrol are the only package chillers available with multiple compressors, motors and separate refrigeration circuits up to 300 H.P.

Thermatrol specification line of chillers include packages with one, two, three or four compressors — motors — separate circuits — any type starters — capacity control, extras, and complete with full operating refrigerant charge of R-12 or R-22. Under full Warranty for every component.

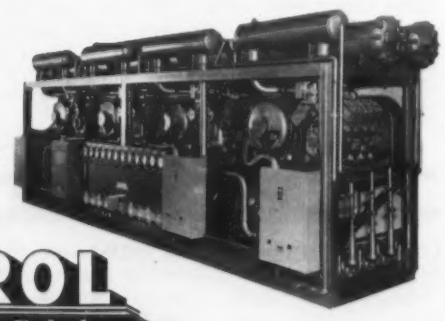


60 H.P. PACKAGE CHILLER
With one compressor
Also available 10-75 H.P.



◄ **DUAL—150 H.P. PACKAGE CHILLER**
With two compressors
Available 80-150 H.P.

QUAD—240 H.P. PACKAGE CHILLER ►
With four compressors
Available 160-300 H.P.



THERMATROL
Schnacke, Inc. Evansville 7, Ind.

Men on the Move . . .

Dunham-Bush, Inc.—DONALD E. KITTREDGE has been named sales representative in California. He formerly was associated with Lawrence Radiation Laboratory, University of California, as a refrigeration designer.

Named sales engineers were PAUL W. CRAWLEY, JR. and HERBERT TINNING. Crawley was assigned to the northeast district encompassing the New England area. He will handle D-B cooling and heating, Heat-X and Brunner products, operating out of the New England district office in West Hartford, Conn. Tinning has been transferred from the New York office where he worked as an application engineer. He will cover sales for Dunham-Bush cooling, Heat-X and Brunner products in New Jersey.

R. G. MOREY will operate as an industrial automotive representative covering Florida from headquarters in St. Petersburg.

Unitary Equipment Div., Carrier Corp.—GEORGE H. WESSLER has been appointed manager of the newly-formed Sacramento District. He has been working with distributors and dealers in Los Angeles and the northwest.

Trane Co. — Appointment of WESLEY W. WRIGHT as assistant manager, CenTraVac Sales Dept., has been announced. He has been a sales engineer with the department.

General Electric Co.—JOSEPH S. STRECKER of G-E's Major Appliance Div. has been appointed regional manager of the company's Central Air Conditioning Dept. He will headquarter in the Merchandise Mart, Chicago. The appointment "will provide aggressive and continued effort to improve the distribution and service of General Electric's heating and cooling line in the mid-central states," it was stated.

SEYMOUR KREWITSKY has been named manager-heating control and special purpose shop operations for the Appliance Control Dept. He has been supervisor-production control since January, 1958, when he was also assigned a position on the value analysis team.

Acme Industries, Inc.—OLAN J. HILL of Louisville, Ky. has been appointed a sales engineer. Hill, in association with MARTIN W. WEBER, will sell Acme air conditioning systems and refrigeration equipment in Kentucky. For many years Hill has sold heating, ventilating, and air conditioning equipment for commercial, industrial, and public building use. Weber has been associated with Olan J. Hill Co. for several years.

Babcock & Wilcox Co.—JAMES S. ANDERSON, vice president in charge of sales for the Tubular Products Div., was appointed general manager of the division. He continues to report to William J. Thomas, vice president in charge of the division.

Fan & Blower Div., Peerless Electric Co.—WILLIAM M. GELVIN has been appointed sales engineer. Gelvin, who will be based at Warren, Ohio, in the company's main offices, was formerly sales manager for The Champion Blower & Forge Co., Lancaster, Pa., and also has had experience in liquid flow instrumentation.

Industrial Hose Div., Flexonics Corp.—ROBINSON F. EDGAR has been appointed marketing manager. For the past 12 years he has been employed by Warner Electric Brake & Clutch Co., Beloit, Wis.

Montgomery Ward & Co.—Appointment of KENNETH D. RHOTON as buyer of warm air furnaces and central air conditioning has been announced. He joins Ward from Ohio Furnace, Inc., Dayton, where he has been general manager since 1954.

Tuck-Aire Furnace Co.—JOHN D. TASSAN has been appointed territorial manager for northern California. He has been in sheet metal and heating sales and management capacities for 12 years with Jordan Supply, S & S Supply, and P. E. O'Hair Co.

Fedders Corp. — JOHN M. HUGHES has joined Fedders as a central residential sales engineer. He will be responsible for sales of through-the-wall room air conditioners and "Adaptomatic" central air conditioners throughout the firm's central region.

The post is a new one, with the responsibility previously being handled by the district sales managers covering the region. Hughes will work with 10 Fedders distributors in Iowa, Minnesota, Kansas, South Dakota, Nebraska, Colorado, and a large portion of Missouri and Illinois. He will headquarter in Florissant, Mo. Hughes was formerly sales manager of heating and air conditioning for Hollander & Co., Fedders St. Louis distributor.

Ohio Fuel Gas Co.—GERALD E. LAVER has been promoted to air conditioning specialist. He has been the firm's business promotion representative at the Lorain office.

American Air Conditioning & Appliance Co.—EMMOREY CONWAY has been named manager of the company's fourth Houston, Texas, branch, at 2328 Bissonnet, which will deal exclusively with air conditioners, handling the Friedrich, Fedders, and General Electric lines.

Lancaster Pump & Mfg. Co., Inc.—ARNO E. RICHTER, assistant to the president, was elected vice president in charge of sales, a newly-created post.

Weathermatic Corp. (Miami)—JOSEPH GREENSTONE was named sales manager for air conditioners and ice-makers by this Carrier distributor. He formerly held a similar post with Carleton-Stuart Corp., New York Carrier distributor.

Lumm Co., Div. of A. H. Lumm Co. (Toledo)—A. E. SMITH was appointed vice president in charge of mechanical engineering for this contracting firm. He has been associated with Kaighin & Hughes, Toledo, for 11 years.

Hudik-Rosa, Inc. (New York City)—HARRY A. COHAN, JR. has been named vice president in charge of sales of this mechanical contracting firm. He was sales engineer with Kerby Saunders Corp.

Crane Co.—THOMAS M. EVANS, chairman of H. K. Porter Co., Pittsburgh, was named chairman and chief executive officer. He will retain his Porter post. NEELE E. STEARNS, president for the past two years, resigned. L. H. T. CLEGG, president of Crane, Ltd., wholly-owned subsidiary, was named acting president.

Hamilton Standard, Div. of United Aircraft Corp.—EDWIN D. EATON, formerly chief of experimental operations, was named manager of a newly-created department for the design, development, and manufacture of specialized ground support equipment for missiles and aircraft.

Since 1933

WHEN YOU NEED...
Air Conditioning & Refrigeration

TESTING INSTRUMENTS and EQUIPMENT

• Test Cords • Replacement Relays • Compressor Analyzers • Psychrometers • Thermometers • Vacuum Gauges • Manometers • Charging Boards • High Vacuum Pumps • Portable Measuring Tubes

SEE YOUR WHOLESALER OR WRITE US.

AIRSERCO MFG. COMPANY
435 Melwood Ave. • Pgh. 13, Pa.

Ranco research engineers discuss dryer controls to be used on 1961 models.

From Ranco's modern Research Center, Pompano Beach, Florida . . .

"Custom-Designed" Controls for your product

The enlarged Ranco Research Center is open for business . . . the research, development and testing of controls for your air conditioning, heating, refrigeration and laundry equipment. Facilities, equipment and staff have been increased to tackle and solve your control requirements. Your product will receive the personal attention of the country's leading control engineers. Ranco Research starts by determining what you want your products to do, develops the control to meet these requirements, tests it for practicality, performance and service.

Ranco Research represents nearly 50 years of successful experience working closely with manufacturers to solve control assignments.

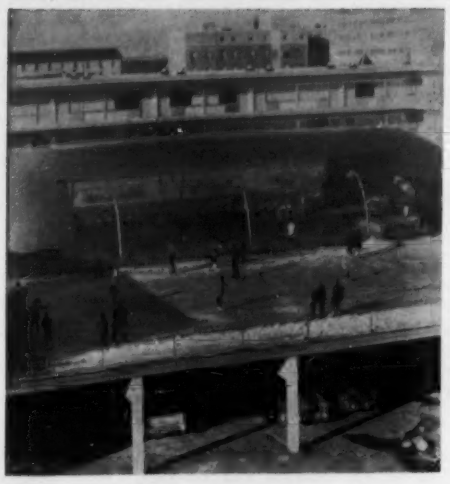
Among the projects now in the Ranco laboratory are:
(1) extracting heat in practicable quantities from low-temperature air
(2) refining and improving heat pump control systems
(3) developing control techniques to make heat pump applications practical anywhere in the U. S.
(4) investigating "comfort air conditioning" through automatic temperature-humidity control systems
(5) improving laundry dryer controls for greater cycle flexibility

To discuss controls specifically or just get acquainted with what Ranco Research can do for you, contact your Ranco representative or write to Ranco Incorporated, Columbus 1, Ohio.

New Ranco Research Center in Pompano Beach, Florida

RANCO CONTROLS
Ranco®
INCORPORATED
COLUMBUS 1, OHIO

Chillers Refrigerate Ice Skating Rink and Cool Empress Motel In Atlantic City



SECOND floor of Empress motel is actually the ground floor of the motel, where the ice skating rink, swimming pool, and lounges are located. The ice skating rink is constructed of steel pipes embedded in a concrete slab. During the summer the rink is used as a dance floor and veranda. During the winter the swimming pool is enclosed with a balloon-canopy which can be inflated in 27 minutes. The transparent canopy enables guests to swim within full view of the winter-attired ice-skaters.

ATLANTIC CITY, N. J.—An unusual refrigeration system to air condition a 250-room motel here in the summer and, with the same equipment to supply brine for a 40 by 100-ft. ice skating rink in the winter, has been furnished by Acme Industries, Inc.

The Acme equipment at the luxurious Empress motel has been operating successfully now for almost a full year. As far as is known, it is the first installation of its kind anywhere.

Two special Model DD-50 (50-ton capacity) combination packaged chillers inter-connected to a special AT-50 cooling tower made it possible to install a system both simpler and less costly than contemplated in original plans and estimates.

ACME Industries' especially-designed Model AT-50 Flow-Mizer cooling towers, with the towers inter-connected to two special Flow-Therm combination packaged chillers.

The system was originally designed with separate coolers, for supplying calcium chloride brine for the skating rink and chilled water to the fan-coil units for air conditioning.

These coolers were to be inter-connected to the same refrigeration compressors with an elaborate set of change-over valves and controls.

After going over installation and operating costs of the proposed system with Acme application engineers and the mechanical contractor, Benjamin Labov & Sons, the Aires Co., Acme's field engineers, suggested that the system could be greatly simplified by using two packaged liquid chillers of the same capacity, completely factory assembled and wired.

Each Acme package has a specially-designed direct-expansion cooler, which was developed for a wide variation in chilled liquid flow rate without excessive pressure drop at the higher rate.

The chiller as finally designed was capable of handling nearly 100% variation in flow rate, with the water flow about 66% of the totaly ethylene glycol brine flow rate.

The system uses a dual refrigerant feed control and a dual electric control panel. Each panel contains its own temperature and pressure controls; one set to maintain leaving water temperature just above freezing, and the other set to maintain leaving brine temperature well below the freezing point of water.

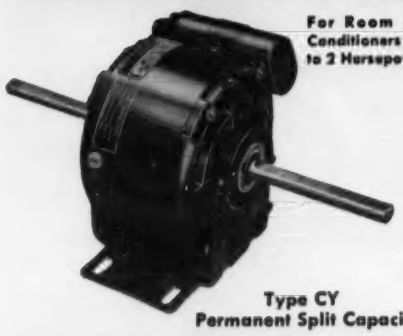
The system also features an automatic change-over switch for the temperature and pressure controls. Two sets of signal lights indicate open safety limit switches, one set for chilled water and the other set for brine.

Two safety lights indicate whether the unit is operating on the brine system or the chilled water system.

A discharge-line oil separator is included, and a pressure control mounted on the chiller framework maintains head pressure by modulating air flow through the cooling towers during cold weather.

Head pressure control was necessary for the chillers since

Redmond Brings You NEW { MOTORS MARKETS PROFITS



For Room Air Conditioners ½ to 2 Horsepower

Type CY
Permanent Split Capacitor

Air Conditioning Replacement Motors

This permanent split capacitor motor combines high starting torque with low current requirements. Totally enclosed to eliminate moisture problems. Designed for easiest installation—resilient mounting base available where 3-inch shaft height required, and double-shaft extensions are long enough to cover all applications. "Quick Disconnects" let you put in motor and then plug in leads. Only one motor needed for both two-speed replacements and single-speed units.

The Type AY MicroMotor is your guarantee of customer satisfaction.

Quietest Direct Drive Blower Motors

New design reduces blower vibration to one-fifth that of units using conventional shaded-pole motors

This motor gives you satisfied customers—when you replace direct drive blower motors with it you solve the problem of vibration noise. Designed and manufactured in every way to give years of whisper-quiet, trouble-free service.

Your No. 1 Condenser Fan Motor for Replacement in the Air Conditioning and Refrigeration Field.

Condenser Fan Motor
1½ through 16 Watts

Condenser Fan Replacement Motor

Shorter length makes AM-4 completely interchangeable • Stock one motor to accommodate all mountings

The Am-4 replaces all rear-mounting motors and motors with peripheral mountings. Designed for all-angle operation and all-position mounting. Extra large oil reservoir permanently sealed for life-time lubrication—guaranteed not to leak oil in use or shipment.

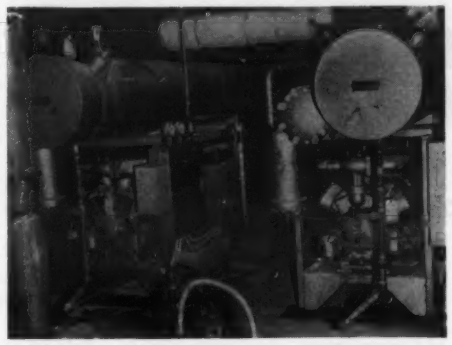
Redmond DISTRIBUTORS DIVISION REDMOND COMPANY, INC., OWOSSO, MICHIGAN

See the Yellow Pages of Your Telephone Directory for Your Local Redmond Distributor

DOES YOUR APPLIANCE CARRY THIS SEAL of QUALITY?

The motor used in this equipment is protected against overloads, low voltage, over-voltage with a Mighty Mite Thermal Protector

MECHANICAL INDUSTRIES PRODUCTION CO.
223 Ash Street • Akron, Ohio



EQUIPMENT ROOM of Empress motel shows Acme packaged liquid chillers. The system uses a dual refrigerant feed control and a dual electric control panel. Each panel contains its own temperature and pressure controls; one set to maintain leaving water temperature just above freezing, and the other set to maintain leaving brine temperature well below the freezing point of water.

the towers operate at full capacity during the air conditioning season and at only 50% capacity during the ice skating season.

The Acme system was started in May, 1958. It ran all summer through the cooling season, was changed over to brine on Nov. 25 and has run successfully all winter long.

The Empress motel is constructed on stilts with the ground floor serving as parking lot. The boiler and equipment room is located in one corner of the parking lot just beneath the shallow part of the swimming pool. Refrigeration equipment and cooling towers are located in the equipment room.

The second floor is actually the ground floor of the motel, where the ice skating rink, swimming pool, and lounges are located. The ice skating rink is constructed of steel pipes embedded in a concrete slab. During the summer season the ice skating rink is used as a dance floor and veranda.

Balloon-Canopy Encloses Pool During Winter

During winter months the swimming pool is enclosed with a balloon-canopy, providing pleasant year-round use. The canopy can be inflated in exactly 27 minutes.

The ends of the canopy are of blue nylon with vinyl coating and the body of the balloon is transparent mylar. A revolving door serving as an entryway also functions as an airlock in the 110-ft. long, 20-ft. high, and 40-ft. wide inflated structure.

Convector radiation heats the interior of the balloon enclosure and a special glass-enclosed and well-heated corridor leads to the pool entry, making it possible for guests to enter the pool from their rooms in bathing suits without going outdoors.

Ice-skating on the 4,000-sq. ft. rink and swimming in the adjacent balloon-enclosed swimming pool are daily attractions at the Shelburne-Empress. The transparent balloon-canopy enables guests to swim within full view of the winter-attired ice-skaters.

Edw. Klee, Go-Between For British, American Firms, Dies of Cancer

DETROIT — Edward Klee, liaison officer between American refrigeration manufacturers and British Empire licensees, died of cancer here May 12. He was buried May 15 in Indianapolis. Survivors include his wife and a daughter.

Following his retirement from General Motors Overseas Corp., Mr. Klee went into business for himself as a "go-between" in establishing contractual relationships among American and British makers of refrigeration equipment.

He was personally responsible for tremendous progress in the growth of this market abroad. Up until the time of his death, age 70, he was exceedingly active; and had traveled much.

Refrigerator, Freezer Sales Well Ahead of '58

NEW YORK CITY—Total industry sales of electric household refrigerators and farm and home freezers continue to run well ahead of last year, the National Electrical Manufacturers Association's statistical bulletin on March volume indicates.

March refrigerator sales rose to 333,700 from 261,100 a year earlier. This pushed sales for the first three months of 1959 to 896,100, compared with 695,000 in the like period of 1958, it was noted.

Freezer sales for March were estimated at 121,400, against 75,400 in the same month last year.

For the first 1959 quarter, sales totaled 290,800, compared with 204,900 in last year's first quarter, according to NEMA's Statistical Dept.

Admiral Appoints Stahlschmidt to Sales Manager Post

CHICAGO — Appointment of Bodie L. Stahlschmidt as sales manager for freezers and air conditioners for Admiral Corp. has been announced by James R. Oberly, vice president - appliance division.

Stahlschmidt

This is a new position and Oberly explained that the growing importance of the company's appliance sales dictated the assignment.

Stahlschmidt joined Admiral in 1955 as the company's regional sales manager in the mid-south territory, which position he held until now.

Redmond
MICROMOTORS
One of largest stocks in the world!
MARVIN L. "FERGIE" FERGESTAD
FACTORY DISTRIBUTORS
CYCLO-FREEZE CORP.
6818 Cambridge, Mpls. 16, Minn.
West 9-6794

HEART of the START
and of the run, too!
Sprague Motor Capacitors

Sprague's full line of motor capacitors covers all the popular ratings and types used in air conditioners, refrigerators, motors, compressors, and other a-c applications. New Catalog C-912a gives valuable capacitor troubleshooting hints . . . covers all the latest information on case styles, ratings, mountings, terminal assemblies, prices, and other important information on plastic and metal-encased starting electrolytics, as well as Clorinol® A-C Running Capacitors and Koolpak® Capacitor Assemblies.

Complete Catalog C-912a covers all the new capacitors used in all late model equipment.

Write for your free copy of Catalog C-912a to Sprague Products Company, 63 Marshall Street, North Adams, Massachusetts.

don't be vague . . . insist on
SPRAGUE®
world's largest capacitor manufacturer

You make more profit per filter sale with Skuttle-aire permanent filters!

Features for long life service: Heavy gauge one piece aluminum frame . . . rigid metal grill for greater strength.

Here are the reasons why you get more with Skuttle-Aire:

because they're permanent . . . built for lifetime wear.

because they're cleaned in a jiffy when dust and dirt particles gather, simply remove, clean with plain water and replace . . . that's all there is to it.

because they're maintenance-free . . . nothing to wear or replace, never need oiling.

because they're filled with new-type filtering material . . . multiple layers of specially woven plastic filaments with permanent electrostatic qualities, making it the ideal dust and dirt collecting agent.

SKUTTLE-AIRE permanent filters are available in all sizes for furnaces, central air conditioning systems and room coolers.

Write today for complete information on Skuttle's quality products that give you more profitable sales.

Skuttle MANUFACTURING CO.
MILFORD, MICHIGAN
IN CANADA: WAIT-SKUTTLE CO., OAKVILLE, ONT.

Specifications for 1959 Packaged Liquid Chillers For Air Conditioning Applications

KEY TO SPECIFICATION TERMS

CAPACITY: Unless otherwise specified, rating is at the following conditions: 10° temperature difference on water, 105° F. condensing temperature, 45° F. outlet water temperature, .0005 fouling factor.

COMPRESSOR TYPE: Open type compressors are further designated "B" for belt drive or "D" for direct drive.

COMPRESSOR MOTOR HP.: Numbers in parentheses indicate the number of compressors at that hp. rating.

REFRIGERANT CHARGE: In pounds. "Oper." means operating charge.

COOLER, CONDENSER: DX—Direct Expansion. S. & T. —Shell & Tube. "Rem."—removable.

'Sales Star' for Last Several Years

(Concluded from page 1)

provided. This is due both to the space limitations and to the variable nature of that type information.

These listings cover only those chillers which include a compressor or other source of power within the framework of the package and which are intended for use in air conditioning applications. This excludes chillers designed specifically for process cooling, drinking water cooling, or other refrigeration applications.

In addition to the companies listed, two other manufacturers indicated that they were making liquid chillers of this type but were not prepared to submit data at this time. They are Circle Air Industries, Inc. in Brooklyn and Custom Temp Corp. in Liberty, N. Y.

W. V. Mauer, Custom Temp president, told the NEWS that his firm was making chillers in sizes from three to 15 hp. in both water and air-cooled models in addition to specialized equipment in other sizes.

Ellis and Watts Products, Inc. of Cincinnati reported that it makes a few packaged liquid chillers of custom design.

Lehigh Mfg. Co. reported that it is not making packaged chillers for air conditioning at this time, but was tentatively considering manufacturing some small size units next year.

For explanation of terms used in the specifications, see adjoining box.

Packaged Liquid Chillers for Air Conditioning

Model No.	Capacity (Nom. Tons)	Overall Dimensions (In.) Height	Length	Depth	Operating Weight (Lbs.)	Compressor Make	Compressor Type	Compressor Motor Hp.	RPM	Phase	Volts	Refrigerant No.	Refrigerant Charge	Cooler Type	Condenser Type
ACI—American Coils Co., R-524 Lakewood Rd., Farmingdale, N. J.															
ACI-A-30	3	32	35¼	25½	550	Copeland	Semi-Hermetic	3	1750	1-2-3	208/230	R-12-22	11	Admiralty Cleanable	Shell & Coil
ACI-A-50	5	32	44¾	26¾	668	Copeland	Semi-Hermetic	5	1750	1-2-3	208/230	R-12-22	13	Admiralty Cleanable	Shell & Coil
ACI-A-75	7½	34	51	30¼	1000	Copeland	Semi-Hermetic	7½	1750	2-3	208/220	R-12-22	16	Admiralty Cleanable	Shell & Coil
ACI-A-100	10	43½	57	30¼	1350	Copeland (2)	Semi-Hermetic	5(2)	1750	2-3	208/220	R-12-22	26	Admiralty Cleanable	Shell & Coil
ACI-A-150	15	43½	57	30¼	1950	Copeland (2)	Semi-Hermetic	7½(2)	1750	2-3	208/220	R-12-22	32	Admiralty Cleanable	Shell & Coil
ACI-AA-30	3	58	35	24	715	Copeland	Semi-Hermetic	3	1750	1-2-3	208/230	R-12-22	9	Admiralty Cleanable	Fin & Tube
ACI-AA-50	5	68	45	25½	845	Copeland	Semi-Hermetic	5	1750	1-2-3	208/230	R-12-22	11	Admiralty Cleanable	Fin & Tube
ACI-AA-75	7½	70	57	28½	1150	Copeland	Semi-Hermetic	7½	1750	2-3	208/220	R-12-22	14	Admiralty Cleanable	Fin & Tube
ACI-AA-100	10	72	66	29¾	1630	Copeland (2)	Semi-Hermetic	5(2)	1750	2-3	208/220	R-12-22	20	Admiralty Cleanable	Fin & Tube
ACI-AA-150	15	75	72	29¾	3400	Copeland (2)	Semi-Hermetic	7½(2)	1750	2-3	208/220	R-12-22	28	Admiralty Cleanable	Fin & Tube
ACI-AA-200	20	75	82	29¾	3980	Copeland (2)	Semi-Hermetic	10(2)	1750	2-3	208/220	R-12-22	40	Admiralty Cleanable	Fin & Tube
440 and 550 volts also available.															
Airtemp—Airtemp, Div. of Chrysler Corp., 1600 Webster St., Dayton 4, Ohio															
SW1303-4	3.0	49⅛	46	19⅜	540	Airtemp	Hermetic	3	3500	3	208/220/440	R-22	9	Direct Expansion	Shell & Coil
SW1305-2	5.1	48¾	49	19¾	930	Airtemp	Hermetic	5	3500	3	208/220/440	R-22	12	Direct Expansion	Shell & Coil
SW1308-3	7.6	48¾	49	19¾	1150	Airtemp	Semi-Hermetic	7½	1750	3	208/220/440	R-22	12	Direct Expansion	Shell & Coil
SW1311	11.5	51	58⅞	28⅛	1250	Airtemp	Semi-Hermetic	10	3500	3	208/220/440	R-22	20	Direct Expansion	Shell & Coil
SW1315	14.9	51	58⅞	28⅛	1360	Airtemp	Semi-Hermetic	15	3500	3	208/220/440	R-22	30	Direct Expansion	Shell & Coil
SW1320	20.6	61¼	96¼	34¼	2900	Airtemp	Semi-Hermetic	10(2)	3500	3	208/220/440	R-22	45	Direct Expansion	Shell & Coil
SW1325	24.4	61¼	96¼	34¼	3050	Airtemp	Semi-Hermetic	10-15	3500	3	208/220/440	R-22	50	Direct Expansion	Shell & Coil
SW1330	29.3	63¾	96¼	34¼	3400	Airtemp	Semi-Hermetic	15(2)	3500	3	208/220/440	R-22	60	Direct Expansion	Shell & Coil
SW1345	45.4	63	120¼	40¼	5000	Airtemp	Semi-Hermetic	15(3)	3500	3	208/220/440	R-22	90	Direct Expansion	Shell & Coil
W322	24.3	76	102	40	3850	Airtemp	Open D	25	1750	3	208/220/440	R-22	80	Direct Expansion	Shell & Tube
W522	40.4	74	118	40	4850	Airtemp	Open D	40	1750	3	208/220/440	R-22	128	Direct Expansion	Shell & Tube
W722	55.5	78	118	41	5600	Airtemp	Open D	60	1750	3	208/220/440	R-22	165	Direct Expansion	Shell & Tube
W822	64.0	80	154	41	7350	Airtemp	Open D	75	1750	3	208/220/440	R-22	206	Direct Expansion	Shell & Tube
W1022	78.6	80	154	42	8150	Airtemp	Open D	100	1750	3	208/220/440	R-22	244	Direct Expansion	Shell & Tube
W1222	95.8	86	154	42	9250	Airtemp	Open D	100	1750	3	208/220/440	R-22	282	Direct Expansion	Shell & Tube
W1422	110.0	86	154	42	9550	Airtemp	Open D	125	1750	3	208/220/440	R-22	314	Direct Expansion	Shell & Tube
American-Standard—American-Standard Industrial Div., Detroit 32, Mich.															
LC-8	6.9	40	75	27	1200	Carrier	Semi-Hermetic	7½	1750	3	220/440	R-22	....	DX Shell & Bundle	Shell & Coil
LC-10	9.1	46	75	28	1450	Carrier	Semi-Hermetic	10	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Coil
LC-15	13.9	48	100	30	2100	Carrier	Semi-Hermetic	7½(2)	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Coil
LC-20	18.2	50	100	30	2600	Carrier	Semi-Hermetic	10	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Coil
CD-20	19.9	56	130	31	2350	Carrier	Open D	20	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-25	24.5	60	118	32	2600	Carrier	Open D	25	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-30	28.9	66	130	35	3200	Carrier	Open D	30	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-40	38.5	68	130	35	3700	Carrier	Open D	40	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-50	48.4	74	132	41	4500	Carrier	Open D	50	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-60	58.2	78	121	42	4900	Carrier	Open D	60	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-75	76.4	74	135	42	5700	Carrier	Open D	75	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-100	96.0	81	134	47	6800	Carrier	Open D	100	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
CD-125	115.6	85	123	52	8100	Carrier	Open D	125	1750	3	220/440	R-22	....	DX Shell & Tube	Shell & Tube
Dimensions are to the nearest inch. Weight is approximate shipping weight. All evaporators are of the direct expansion type.															
APCo—Addison Products Co., Addison, Mich.															
35WCL	2.5	8¼	36	27⅛	135	....	....	....	....	....	....	....	....	Dry Expansion	....
35AC	....	28¾	30¼	27⅞	260	Tecumseh	Hermetic	3	1750	1	230	R-22	9# 12	....	Fin & Tube
60WCL	4.5	8¼	40½	32	188	....	....	....	....	....	....	....	....	Dry Expansion	....
60AC	....	28¾	48⅝	31⅞	455	Tecumseh	Hermetic	5	1750	1	230	R-22	17# 11	....	Fin & Tube
Arkla-Servel—Arkla Air Conditioning Corp., 812 Main St., Little Rock, Ark.															
3000	25	82⅞	92¾	30	2800	Absorption Type		....	....	....	....	Water & Lithium Bromide	....	....	Shell & Tube
3000A—modulating, 6-15 p.s.i. steam; 3000B—modulating, 3-6 p.s.i. steam; 3000C—non-modulating, 6-15 p.s.i. steam															
Brown Mono-Aqua—A. Brown Products Corp., 1090 Springfield Rd., Union, N. J.															
BWC-2W	....	27⅜	17¾	23¼	....	Tecumseh	Hermetic	2	....	1—3	220	R-22	....	Tube In Tube	Tube In Tube
BWC-3W	....	27⅜	17¾	23¼	....	Tecumseh	Hermetic	3	....	1—3	220	R-22	....	Tube In Tube	Tube In Tube
BWC-5W	....	34¾	20	33	....	Tecumseh	Hermetic	5	....	1—3	220	R-22	....	Tube In Tube	Tube In Tube
BWC-3I	....	51¼	28½	34	....	Tecumseh	Hermetic	3	....	1	220	R-22	....	Tube In Tube	Fin & Tube
BWC-2R	....	27⅜	17¾	23¼	....	Tecumseh	Hermetic	2	....	1—3	220	R-22	....	Tube In Tube	Fin & Tube
BWC-3R	....	27⅜	17¾	23¼	....	Tecumseh	Hermetic	3	....	1—3	220	R-22	....	Tube In Tube	Fin & Tube
BWC-5R	....	34¾	20	33	....	Tecumseh	Hermetic	5	....	1—3	220	R-22	....	Tube In Tube	Fin & Tube
BWC-10W	....	34¾	48	33	....	Tecumseh	Hermetic	5(2)	....	3	220	R-22	....	Tube In Tube	Tube In Tube
BWC-15W	....	34¾	76	33	....	Tecumseh	Hermetic	5(3)	....	3	220	R-22	....	Tube In Tube	Tube In Tube
BWC-20W	....	34¾	104	33	....	Tecumseh	Hermetic	5(4)	....	3	220	R-22	....	Tube In Tube	Tube In Tube
BWC-25W	....	34¾	132	33	....	Tecumseh	Hermetic	5(5)	....	3	220	R-22	....	Tube In Tube	Tube In Tube
Capitolaire—National-U. S. Radiator, 944 Ash St., Johnstown, Pa.															
CHL-1W-A8H	7.0	45½	78	31¼	1200	Copeland	Semi-Hermetic	7½	1750	3	208/220/440	R-22	12	S & T Rem. Bundle	Shell & Tube
CHL-1W-A10H	9.5	45½	78½	31¼	1400	Copeland	Semi-Hermetic	10	1750	3	208/220/440	R-22	18	S & T Rem. Bundle	Shell & Tube
CHL-1W-B15H	13.5	59¼	89½	31¼	2200	Copeland	Semi-Hermetic	7½(2)	1750	3	208/220/440	R-22	(2)12	S & T Rem. Bundle	Shell & Tube
CHL-1W-B20H	18.5	63½	80½	31¼	2400	Copeland	Semi-Hermetic	10(2)	1750	3	208/220/440	R-22	(2)18	S & T Rem. Bundle	Shell & Tube
CHL-1W-B25H	24.0	65¼	94½	31¼	3200	Brunnermetic	Semi-Hermetic	10-15	1750	3	208/220/440	R-22	18-32	S & T Rem. Bundle	Shell & Tube
CHL-1W-B30H	27.5	65¼	94½	31¼	3800	Brunnermetic	Semi-Hermetic	15(2)	1750	3	208/220/440	R-22	(2)32	S & T Rem. Bundle	Shell & Tube
CHL-1E-A8H	7.0	59½	119½	35¼	2300	Copeland	Semi-Hermetic	7½	1750	3	208/220/440	R-22	25	S & T Rem. Bundle	Evaporative
CHL-1E-A10H	9.5	68½	120¼	41¼	2700	Copeland	Semi-Hermetic	10	1750	3	208/220/440	R-22	32	S & T Rem. Bundle	Evaporative
CHL-1E-B15H	13.5	74½	144½	41¼	3400	Copeland	Semi-Hermetic	7½(2)	1750	3	208/220/440	R-22	(2)25	S & T Rem. Bundle	Evaporative
CHL-1E-B20H	18.5	83½	137	51¼	4200	Copeland	Semi-Hermetic	10(2)	1750	3	208/220/440	R-22	(2)32	S & T Rem. Bundle	Evaporative
CHL-1E-B25H	24.0	83½	147½	51¼	5600	Brunnermetic	Semi-Hermetic	10-15	1750	3	208/220/440	R-22	32-55	S & T Rem. Bundle	Evaporative
CHL-1E-B30H	27.5	88½	152	55¼	6700	Brunnermetic	Semi-Hermetic	15(2)	1750	3	208/220/440	R-22	(2)55	S & T Rem. Bundle	Evaporative
CWG-40	37.0	67	134	45	5800	Brunner	Open B	40	530	3	208/220/440	R-22	....	Shell & Tube	Shell & Tube
CWG-50	46.0	67	158	45	6300	Brunner	Open B	50	620	3	208/220/440	R-22	....	Shell & Tube	Shell & Tube
CWG-60	59.5	75	122	54	7060	Brunner	Open B	60	820	3	208/220/440	R-22	....	Shell & Tube	Shell & Tube
CWG-75	76.0	75	134	57	7490	Brunner	Open B	75	1070	3	208/220/440	R-22	....	Shell & Tube	Shell & Tube
CWG-E-40	37.0	93½	195	60	7500	Brunner	Open B	40	530	3	208/220/440	R-22	....	Shell & Tube	Evaporative
CWG-E-50	46.0	99½	242¼	60	8660	Brunner	Open B	50	620	3	208/220/440	R-22	....	Shell & Tube	Evaporative
CWG-E-60	59.5	103½	210½	60	9690	Brunner	Open B	60	820	3	208/220/440	R-22	....	Shell & Tube	Evaporative
CWG-E-75	76.0	102½	236	60	10300	Brunner	Open B	75	1070	3	208/220/440	R-22	....	Shell & Tube	Evaporative
CHL Series, 7½ through 30 hp. available with air-cooled condensers.															

Model No.	Capacity (Nom. Tons)	Overall Dimensions (In.) Height	Length	Depth	Operating Weight (Lbs.)	Compressor Make	Compressor Type	Compressor Motor Hp.	RPM	Phase	Volts	Refrigerant No.	Charge	Cooler Type	Condenser Type
Cold Generator—The Trane Co., La Crosse, Wis.															
CG10A	10	64¾	78½	26	2000	Trane	Open D	10	1750	Any	Any	R-12	....	Direct Expansion	Shell & Tube
CG15A	15	67⅛	78½	22½	2150	Trane	Open D	15	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG20A	20	68¼	91	23½	2350	Trane	Open D	20	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG25A	25	70¼	125¼	24½	3100	Trane	Open D	25	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG30A	30	71⅞	118½	25⅞	3800	Trane	Open D	30	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG40A	40	79½	118⅝	29¼	4150	Trane	Open D	40	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG50A	50	52	114⅛	55¾	5000	Trane	Open D	50	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG60A	60	57½	126⅛	60	5200	Trane	Open D	60	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG75A	75	61	119	61¼	5800	Trane	Open D	75	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG100A	100	64¾	142⅞	66⅝	7900	Trane	Open D	100	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG125A	125	68¾	125⅛	67⅞	9700	Trane	Open D	125	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
CG150A	150	69	146⅛	80	10600	Trane	Open D	150	1750	Any	Any	R-22	....	Direct Expansion	Shell & Tube
Weight does not include motor.															
Curtis—Curtis Mfg. Co., 1905 Kienlen Ave., St. Louis 33, Mo.															
F7C14	7½	47⅞	95⅞	30	1420	Curtis	Open B	7½	1800	2—3	208/220/440/550	R-22	35	Shell & Tube	Shell & Tube
7C14	7½	47⅞	95⅞	30	1410	Curtis	Open B	7½	1800	2—3	208/220/440/550	R-12	40	Shell & Tube	Shell & Tube
F10C18	10	47⅞	107⅞	30	1845	Curtis	Open B	10	1800	2—3	208/220/440/550	R-22	40	Shell & Tube	Shell & Tube
10C18	10	47⅞	107⅞	30	1835	Curtis	Open B	10	1800	2—3	208/220/440/550	R-12	45	Shell & Tube	Shell & Tube
F15C24	15	47⅞	143⅞	30	2330	Curtis	Open B	15	1800	2—3	208/220/440/550	R-22	50	Shell & Tube	Shell & Tube
15C24	15	47⅞	143⅞	30	2320	Curtis	Open B	15	1800	2—3	208/220/440/550	R-12	55	Shell & Tube	Shell & Tube
F20C28A	20	47⅞	155⅞	30	2620	Curtis	Open B	20	1800	2—3	208/220/440/550	R-22	55	Shell & Tube	Shell & Tube
20C28A	20	58⅛	156⅜	36	3100	Curtis	Open B	20	1800	2—3	208/220/440/550	R-12	65	Shell & Tube	Shell & Tube
F25C33	25	58⅞	135	36	3270	Curtis	Open B	25	1800	2—3	208/220/440/550	R-22	65	Shell & Tube	Shell & Tube
25C33	25	58⅞	135	36	3280	Curtis	Open B	25	1800	2—3	208/220/440/550	R-12	70	Shell & Tube	Shell & Tube
F30C36	30	58⅞	147	36	3430	Curtis	Open B	30	1800	2—3	208/220/440/550	R-22	75	Shell & Tube	Shell & Tube
30C36	30	58⅞	147	36	3450	Curtis	Open B	30	1800	2—3	208/220/440/550	R-12	80	Shell & Tube	Shell & Tube
F40C38	40	58⅞	159	36	3660	Curtis	Open B	40	1800	2—3	208/220/440/550	R-22	90	Shell & Tube	Shell & Tube
40C38	40	58⅞	159	36	3670	Curtis	Open B	40	1800	2—3	208/220/440/550	R-12	100	Shell & Tube	Shell & Tube
F50C46A	50	61½	148⅝	36	4210	Curtis	Open B	50	1800	2—3	208/220/440/550	R-22	110	Shell & Tube	Shell & Tube
50C46A	50	83¾	148½	36	5870	Curtis	Open B	50	1800	2—3	208/220/440/550	R-12	135	Shell & Tube	Shell & Tube
F60C49	60	82¼	160⅝	36	6170	Curtis	Open B	60	1800	2—3	208/220/440/550	R-22	145	Shell & Tube	Shell & Tube
60C49	60	82¼	160⅝	36	6180	Curtis	Open B	60	1800	2—3	208/220/440/550	R-12	155	Shell & Tube	Shell & Tube
F80C57A	80	83¾	167	36	6890	Curtis	Open B	80	1800	2—3	208/220/440/550	R-22	205	Shell & Tube	Shell & Tube
80C57A	80	83¾	167	36	6900	Curtis	Open B	80	1800	2—3	208/220/440/550	R-12	225	Shell & Tube	Shell & Tube
F100C58A	100	83¾	179	36	7420	Curtis	Open B	100	1800	2—3	208/220/440/550	R-22	220	Shell & Tube	Shell & Tube
F25HC33	25	49	129½	36	3300	Curtis	Semi-Hermetic	25	1800	3	220/440	R-22	65	Shell & Tube	Shell & Tube
F30HC36	30	49	141½	36	3500	Curtis	Semi-Hermetic	30	1800	3	220/440	R-22	75	Shell & Tube	Shell & Tube
F40HC38	40	49	153½	36	3700	Curtis	Semi-Hermetic	40	1800	3	220/440	R-22	90	Shell & Tube	Shell & Tube
F50HC46A	50	51⅝	143⅛	36	4230	Curtis	Semi-Hermetic	50	1800	3	220/440	R-22	110	Shell & Tube	Shell & Tube
F60HC49	60	51⅝	155⅛	36	5100	Curtis	Semi-Hermetic	60	1800	3	220/440	R-22	145	Shell & Tube	Shell & Tube
Dialatemp FluidPak—Dialatemp, Inc., 706 Chestnut, St. Louis 1, Mo.															
DFP-15	13.9	55	80	22	2500	Dialaire	Open D	15	1750	3	208/220/440/550	R-22	45	DX Shell & Tube	Cleanable S. & T.
DFP-20	18.3	62	92	24	3135	Dialaire	Open D	20	1750	3	208/220/440/550	R-22	55	DX Shell & Tube	Cleanable S. & T.
DFP-25	23.3	62	128	24	3475	Dialaire	Open D	25	1750	3	208/220/440/550	R-22	66	DX Shell & Tube	Cleanable S. & T.
DFP-30	27.6	71	116	28	4130	Dialaire	Open D	30	1750	3	208/220/440/550	R-22	82	DX Shell & Tube	Cleanable S. & T.
DFP-40	36.7	72	116	28	4600	Dialaire	Open D	40	1750	3	208/220/440/550	R-22	90	DX Shell & Tube	Cleanable S. & T.
DFP-50	46.5	75	117	32	6300	Dialaire	Open D	50	1750	3	208/220/440/550	R-22	112	DX Shell & Tube	Cleanable S. & T.
DFP-60	55.2	75	129	32	6550	Dialaire	Open D	60	1750	3	208/220/440/550	R-22	120	DX Shell & Tube	Cleanable S. & T.
DFP-75	76.5	81	129	32	8200	Dialaire	Open D	75	1750	3	208/220/440/550	R-22	154	DX Shell & Tube	Cleanable S. & T.
DFP-100	95.0	86	135	36	10875	Dialaire	Open D	100	1750	3	208/220/440/550	R-22	192	DX Shell & Tube	Cleanable S. & T.
DFP-125	110.4	92	135	36	11225	Dialaire	Open D	125	1750	3	208/220/440/550	R-22	218	DX Shell & Tube	Cleanable S. & T.
DFP-150	153.0	76	174	48	12250	Dialaire	Open D	150	1750	3	208/220/440/550	R-22	298	DX Shell & Tube	Cleanable S. & T.
Special Features: 1. All models available for 50 cycle operation. 2. FluidPak evaporators are completely insulated with 3 in. of rock cork laid in asphalt and covered with a 20 gauge outer galvanized steel jacket.															
EWC, EAC—Embassy Steel Products, Inc., 890 Stanley Ave., Brooklyn 8, N. Y.															
EWC-30	3	32	35¼	25½	550	Copeland	Semi-Hermetic	3	1750	1-2-3	208/230	R-12-22	11	Admiralty Cleanable	Shell & Coil
EWC-50	5	32	44¾	26¾	668	Copeland	Semi-Hermetic	5	1750	1-2-3	208/230	R-12-22	13	Admiralty Cleanable	Shell & Coil
EWC-75	7½	34	51	30¼	1000	Copeland	Semi-Hermetic	7½	1750	2-3	208/220	R-12-22	16	Admiralty Cleanable	Shell & Coil
EWC-100	10	43½	57	30¼	1350	Copeland (2)	Semi-Hermetic	5(2)	1750	2-3	208/220	R-12-22	26	Admiralty Cleanable	Shell & Coil
EWC-150	15	43½	57	30¼	1950	Copeland (2)	Semi-Hermetic	7½(2)	1750	2-3	208/220	R-12-22	32	Admiralty Cleanable	Shell & Coil
EAC-30	3	58	35	24	715	Copeland	Semi-Hermetic	3	1750	1-2-3	208/230	R-12-22	9	Admiralty Cleanable	Fin & Tube
EAC-50	5	68	45	25¼	845	Copeland	Semi-Hermetic	5	1750	1-2-3	208/230	R-12-22	11	Admiralty Cleanable	Fin & Tube
EAC-75	7½	70	57	28½	1150	Copeland	Semi-Hermetic	7½	1750	2-3	208/220	R-12-22	14	Admiralty Cleanable	Fin & Tube
EAC-100	10	72	66	29¾	1630	Copeland (2)	Semi-Hermetic	5(2)	1750	2-3	208/220	R-12-22	20	Admiralty Cleanable	Fin & Tube
EAC-150	15	75	72	29¾	3400	Copeland (2)	Semi-Hermetic	7½(2)	1750	2-3	208/220	R-12-22	28	Admiralty Cleanable	Fin & Tube
EAC-200	20	75	82	29¾	3980	Copeland (2)	Semi-Hermetic	10(2)	1750	2-3	208/220	R-12-22	40	Admiralty Cleanable	Fin & Tube
440 and 550 volts also available.															
Flow-Therm (HE, DE, DD), Flow Cold (RF, RG), Flow Pac (WC)—Acme Industries, Inc., 600 N. Mechanic, Jackson, Mich.															
HE-20	18.8	53	76	25	1620	Copeland	Hermetic	20	1750	3	220/440	R-22	39	DX Shell & Tube	Shell & Tube
HE-25	22.6	53	88	25	1800	Copeland	Hermetic	25	1750	3	220/440	R-22	49	DX Shell & Tube	Shell & Tube
HE-30	26.8	60	84	29	2390	Copeland	Hermetic	30	1750	3	220/440	R-22	60	DX Shell & Tube	Shell & Tube
HE-40	35.9	60	84	29	2650	Copeland	Hermetic	40	1750	3	220/440	R-22	80	DX Shell & Tube	Shell & Tube
HE-50	44.9	62	86	32	3150	Copeland	Hermetic	50	1750	3	220/440	R-22	100	DX Shell & Tube	Shell & Tube
HE-60	54.2	62	86	35	3490	Copeland	Hermetic	60	1750	3	220/440	R-22	120	DX Shell & Tube	Shell & Tube
DE-20	19.4	45	77	25	1685	Copeland	Open D	20	1750	3	220/440	R-22	39	DX Shell & Tube	Shell & Tube
DE-25	23.2	45	88	25	1900	Copeland	Open D	25	1750	3	220/440	R-22	49	DX Shell & Tube	Shell & Tube
DE-30	27.5	51	84	29	2520	Copeland	Open D	30	1750	3	220/440	R-22	60	DX Shell & Tube	Shell & Tube
DE-40	36.9	53	84	29	2850	Copeland	Open D	40	1750	3	220/440	R-22	80	DX Shell & Tube	Shell & Tube
DE-50	45.9	56	86	32	3430	Copeland	Open D	50	1750	3	220/440	R-22	100	DX Shell & Tube	Shell & Tube
DE-60	55.4	60	86	35	3890	Copeland	Open D	60	1750	3	220/440	R-22	120	DX Shell & Tube	Shell & Tube
DE-75	74.6	64	88	39	4570	Copeland	Open D	75	1750	3	220/440	R-22	150	DX Shell & Tube	Shell & Tube
DE-100	93.4	69	90	43	5420	Copeland	Open D	100	1750	3	220/440	R-22	200	DX Shell & Tube	Shell & Tube
DE-125	112.5	66	108	43	6500	Copeland	Open D	125	1750	3	220/440	R-22	250	DX Shell & Tube	Shell & Tube
DD-20	19.9	57	130	28	2350	Copeland	Open D	20	1750	3	220/440	R-22	44	DX Shell & Tube	Shell & Tube
DD-25	24.5	60	118	30	2600	Copeland	Open D	25	1750	3	220/440	R-22	55	DX Shell & Tube	Shell & Tube
DD-30	28.9	66	130	32	3200	Copeland	Open D	30	1750	3	220/440	R-22	66	DX Shell & Tube	Shell & Tube
DD-40	38.5	68	130	34	3700	Copeland	Open D	40	1750	3	220/440	R-22	88	DX Shell & Tube	Shell & Tube
DD-50	48.4	74	133	39	4500	Copeland	Open D	50	1750	3	220/440	R-22	110	DX Shell & Tube	Shell & Tube
DD-60	58.2	73	121	41	4900	Copeland	Open D	60	1750	3	220/440	R-22	132	DX Shell & Tube	Shell & Tube
DD-75	76.4	74	135	42	5700	Copeland	Open D	75	1750	3	220/440	R-22	165	DX Shell & Tube	Shell & Tube
DD-100	96.0	81	135	47	6800	Copeland	Open D	100	1750	3	220/440	R-22	220	DX Shell & Tube	Shell & Tube
DD-125	115.6	85	123	52	8100	Copeland	Open D	125	1750	3	220/440	R-22	275	DX Shell & Tube	Shell & Tube
RG-3	2.75	38	45	22	590	Copeland	Hermetic	3	1750	1—3	220/440	R-22	5	DX Shell & Tube	Shell & Tube
RG-5	4.45	38	45	22	670	Copeland	Hermetic	5	1750	1—3	220/440	R-22	8	DX Shell & Tube	Shell & Tube
RG-8	6.91	40	45	25	775	Copeland	Hermetic	7½	1750	3	220/440	R-22	13	DX Shell & Tube	Shell & Tube
RG-10	9.13	40	45	28	865	Copeland	Hermetic	10	1750	3	220/440	R-22	15	DX Shell & Tube	Shell & Tube
RG-15	13.9	44	68	25	1400	Copeland	Hermetic	15	1750	3	220/440	R-22	26	DX Shell & Tube	Shell & Tube
RG-20	18.2	44	68	28	1585	Copeland	Hermetic	20	1750	3	220/440	R-22	30	DX Shell & Tube	Shell & Tube
RG-25	22.9	46	68	28	1760	Copeland	Hermetic	25	1750	3	220/440	R-22	39	DX Shell & Tube	Shell & Tube
RG-30	27.9	50	68	28	1905	Copeland	Hermetic	30	1750	3	220/440	R-22	48	DX Shell & Tube	Shell & Tube
RF-3	2.75	43	51	24	770	Copeland	Hermetic	3	1750	1—3	220/440	R-22	9	DX Shell & Tube	Shell & Coil
RF-5	4.45	43	72	24	880	Copeland	Hermetic	5	1750	1—3	220/440	R-22	10	DX Shell & Tube	Shell & Coil
RF-8	6.91	47	75	26	1040	Copeland	Hermetic	7½	1750	3	220/440	R-22	15	DX Shell & Tube	Shell & Coil
RF-10	9.13	47	75	27	1270	Copeland	Hermetic	10	1750	3	220/440	R-22	17	DX Shell & Tube	Shell & Coil
RF-15	13.9	47	100	29	1830	Copeland	Hermetic	15	1750	3	220/440	R-22	30	DX Shell & Tube	Shell & Coil
RF-20	18.2	50	100	29	2440	Copeland	Hermetic	20	1750	3	220/440	R-22	34	DX Shell & Tube	Shell & Coil
RF-25	22.9	50	114	29	2500	Copeland	Hermetic	25	1750	3	220/440	R-22	42.5	DX Shell & Tube	Shell & Coil
RF-30	27.9	50	126	29	2650	Copeland	Hermetic	30	1750	3	220/440	R-22	51	DX Shell & Tube	Shell & Coil
WCW-18	1.45	22	24	18	190	Tecumseh	Hermetic	1¾	1750	1	230	R-22	6	Shell & Coil	Shell & Coil
WCW-30	2.7	27	24	18	265	Tecumseh	Hermetic	3	1750	1—3	230/220	R-22	8.5	Shell & Coil	Shell & Coil
WCW-50	4.73	28	28	25	370	Tecumseh	Hermetic	5	1750	1—3	230/220	R-22	14	Shell & Coil	Shell & Coil
WCA-20	1.27	36	33	29	245	Tecumseh	Hermetic	2	1750	1	230	R-22	8.2	Shell & Coil	Fin & Tube
WCA-30	2.13	36	33	29	340	Tecumseh	Hermetic	3	1750	1—3	230/220	R-22	11.25	Shell & Coil	Fin & Tube
WCA-50	4.07	41	38	38	515	Tecumseh	Hermetic	5	1750	1—3	230/220	R-22	19.1	Shell & Coil	Fin & Tube
Frick—Frick Co., Waynesboro, Pa.															
2012	20	66	75	36	2515	Frick	Open B	20	950	3	220/440	R-12	25	Direct Expansion	Shell & Tube
3022	30	69	78	37⅜	2880	Frick	Open B	30	950	3	220/440	R-22	54	Direct Expansion	Shell & Tube
4012	40	72	82	39½	3775	Frick	Open B	40	940	3	220/440	R-12	70	Direct Expansion	Shell & Tube
6022	60	78	82	48½	4210	Frick	Open B	50	940	3	220/440	R-22	90	Direct Expansion	Shell & Tube
7512	75	89¾	84	48	5685	Frick	Open B	75	775	3	220/440	R-12	105	Direct Expansion	Shell & Tube
9012	90	89⅝	96	57	5800	Frick	Open B	100	940	3	220/440	R-12	180	Direct Expansion	Shell & Tube
12022	120	85	153½	48½	7510	Frick	Open B	100	940	3	220/440	R-22	180	Direct Expansion	Shell & Tube
15012	150	89⅝	156	57	7980	Frick	Open B	150	1200	3	220/440	R-12	270	Direct Expansion	Shell & Tube
18012	180	95⅝	160¼	48	9975	Frick	Open B	200	940	3	220/440	R-12	270	Direct Expansion	Shell & Tube

Packaged Water Chillers for Air Conditioning (continued)

Model No.	Capacity (Nom. Tons)	Overall Dimensions (In.) Height	Length	Depth	Operating Weight (Lbs.)	Compressor Make	Compressor Type	Compressor Motor Hp.	RPM	Phase	Volts	Refrigerant No.	Charge	Cooler Type	Condenser Type
Heat-X—Heat-X, Inc., Brewster, N. Y.															
PC-200	2.25	33	47¾	16	500	Brunner	Semi-Hermetic	2	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-300	3.28	33	53	16	665	Brunner	Semi-Hermetic	3	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-500	5.16	39¼	54	18	800	Brunner	Semi-Hermetic	5	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-750	7.00	39¼	62	18	985	Brunner	Semi-Hermetic	7.5	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-1001	9.42	40	63	18	1150	Brunner	Semi-Hermetic	10	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-1002	10.32	39	66	28	1765	Brunner	Semi-Hermetic	5(2)	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-1501	13.32	46¼	63½	21¼	1780	Brunner	Semi-Hermetic	15	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-1502	14.00	39	74	28	2085	Brunner	Semi-Hermetic	7.5(2)	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-2002	18.84	46	74	28	2225	Brunner	Semi-Hermetic	10(2)	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-2502	23.59	52	64¾	35¼	2300	Brunner	Semi-Hermetic	15-10	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-3002	26.7	52	64¾	35¼	2510	Brunner	Semi-Hermetic	15(2)	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
ARPC-200	2.04†	26⅝	38½	40	530	Brunner	Semi-Hermetic	2	1750	3	220	R-12	....	Shell & Tube	Fin & Tube
ARPC-300	2.9†	26⅝	38½	40	640	Brunner	Semi-Hermetic	3	1750	3	220	R-12	....	Shell & Tube	Fin & Tube
ARPC-500	4.63†	26⅝	41½	55	840	Brunner	Semi-Hermetic	5	1750	3	220	R-12	....	Shell & Tube	Fin & Tube
ARPC-750	7.0†	42¼	45¼	55	1130	Brunner	Semi-Hermetic	7.5	1750	3	220	R-12	....	Shell & Tube	Fin & Tube
PC-2000	19.2	62	78	34½	2600	Brunner	Open B	20	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-2500	23.2	64	78	36	2750	Brunner	Open B	25	1750	3	220	R-12	....	Shell & Tube	Shell & Tube
PC-3000	28.6	64	78	36	2900	Brunner	Open B	30	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-4000	38.5	71	82	39½	3450	Brunner	Open B	40	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-5000	50.0	78	85	42½	4500	Brunner	Open B	50	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-6000	57.6	78	85	42½	4800	Brunner	Open B	60	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-7500	69.1	79½	85	42½	5200	Brunner	Open B	75	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
PC-10000	95.5	78	88	56	6700	Brunner	Open B	100	1750	3	220	R-22	....	Shell & Tube	Shell & Tube
†At 90° ambient air.															
Herman Nelson—Herman Nelson, School Air Systems Div., 215 Central Ave., Louisville, Ky.															
D20D	20.5	58	108	32½	2400	Carrier	Open D	20	1750	3	*	R-22	72	Shell & Coil	Shell & Tube
D20H	20.5	58	108	32½	2400	Carrier	Hermetic	20	1750	3	*	R-22	72	Shell & Coil	Shell & Tube
D25D	24.3	58	108	32½	2500	Carrier	Open D	25	1750	3	*	R-22	82	Shell & Coil	Shell & Tube
D25H	24.2	58	108	32½	2400	Carrier	Hermetic	25	1750	3	*	R-22	82	Shell & Coil	Shell & Tube
D30D	28.8	63½	115½	35½	3300	Carrier	Open D	30	1750	3	*	R-22	103	Shell & Coil	Shell & Tube
D30H	28.8	63½	115½	35½	3200	Carrier	Hermetic	30	1750	3	*	R-22	103	Shell & Coil	Shell & Tube
D40D	37.9	63½	115½	37½	3700	Carrier	Open D	40	1750	3	*	R-22	116	Shell & Coil	Shell & Tube
D40H	37.9	63½	115½	37½	3700	Carrier	Hermetic	40	1750	3	*	R-22	116	Shell & Coil	Shell & Tube
D50D	47.1	70½	107	44½	4700	Carrier	Open D	50	1750	3	*	R-22	144	Shell & Coil	Shell & Tube
D50H	47.1	70½	107	44½	4600	Carrier	Hermetic	50	1750	3	*	R-22	144	Shell & Coil	Shell & Tube
D60D	55.7	70½	107	44½	5200	Carrier	Open D	60	1750	3	*	R-22	155	Shell & Coil	Shell & Tube
D60H	55.7	70½	107	44½	5100	Carrier	Hermetic	60	1750	3	*	R-22	155	Shell & Coil	Shell & Tube
D75D	76.3	76	145	45	6500	Carrier	Open D	75	1750	3	*	R-22	237	Shell & Coil	Shell & Tube
D100D	102	80½	145	47½	7900	Carrier	Open D	100	1750	3	*	R-22	245	Shell & Coil	Shell & Tube
D125D	110	80½	145	47½	8500	Carrier	Open D	125	1750	3	*	R-22	276	Shell & Coil	Shell & Tube
D150D	147	81	169	48½	10600	Carrier	Open D	150	1750	3	*	R-22	325	Shell & Coil	Shell & Tube
*Open unit voltages available: 208, 220, 440, 550, and other standard voltages. Hermetic units available for 208, 220, 440, 550, and 380 volts.															
Hydro-Flo—Bell & Gossett Co., Morton Grove, Ill.															
PLC-7-½	6.76	44	80	29	1500	Bell & Gossett	Open D	7½	1170	3	220/440	R-12	10	U-Tube	Shell & Tube
PLC-10	9.44	44	80	29	1700	Bell & Gossett	Open D	10	1750	3	220/440	R-12	15	U-Tube	Shell & Tube
PLC-15	14.10	44	88	29	2400	Bell & Gossett	Open D	15	1750	3	220/440	R-22	22	U-Tube	Shell & Tube
PLC-20	15.50	57	90	34	4050	Bell & Gossett	Open D	20	1170	3	220/440	R-12	24	U-Tube	Shell & Tube
PLC-25	23.20	57	90	34	4275	Bell & Gossett	Open D	25	1750	3	220/440	R-12	35	U-Tube	Shell & Tube
PLC-30	24.60	60½	98	40	4840	Bell & Gossett	Open D	30	1170	3	220/440	R-22	37	U-Tube	Shell & Tube
PLC-40	37.70	62	98	40	5540	Bell & Gossett	Open D	40	1750	3	220/440	R-22	57	U-Tube	Shell & Tube
PLC-50	46.10	69½	98	40	5010	Bell & Gossett	Open D	50	1750	3	220/440	R-12	70	U-Tube	Shell & Tube
PLC-60	53.2	70	98	48	5510	Bell & Gossett	Open D	60	1750	3	220/440	R-22	80	U-Tube	Shell & Tube
PLC-75	71.7	70	98	48	5988	Bell & Gossett	Open D	75	1750	3	220/440	R-22	107	U-Tube	Shell & Tube
PLC-100	88.7	85	115	59	8780	Bell & Gossett	Open D	100	1750	3	220/440	R-22	134	U-Tube	Shell & Tube
PLC-125	106.4	85	124	63	10400	Bell & Gossett	Open D	125	1750	3	220/440	R-22	159	U-Tube	Shell & Tube
PLC-150	143.0	85	124	63	12050	Bell & Gossett	Open D	150	1750	3	220/440	R-22	215	U-Tube	Shell & Tube
Kennard—Kennard Div., American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky.															
PLC20D	20.5	58	108	32½	2400	Carrier	Open D	20	1750	3	*	R-22	72	Shell & Coil	Shell & Tube
PLC20H	20.5	58	108	32½	2400	Carrier	Hermetic	20	1750	3	*	R-22	72	Shell & Coil	Shell & Tube
PLC25D	24.2	58	108	32½	2500	Carrier	Open D	25	1750	3	*	R-22	82	Shell & Coil	Shell & Tube
PLC25H	24.2	58	108	32½	2400	Carrier	Hermetic	25	1750	3	*	R-22	82	Shell & Coil	Shell & Tube
PLC30D	28.8	63½	115½	35½	3300	Carrier	Open D	30	1750	3	*	R-22	103	Shell & Coil	Shell & Tube
PLC30H	28.8	63½	115½	35½	3200	Carrier	Hermetic	30	1750	3	*	R-22	103	Shell & Coil	Shell & Tube
PLC40D	37.9	63½	115½	37½	3700	Carrier	Open D	40	1750	3	*	R-22	116	Shell & Coil	Shell & Tube
PLC40H	37.9	63½	115½	37½	3700	Carrier	Hermetic	40	1750	3	*	R-22	116	Shell & Coil	Shell & Tube
PLC50D	47.1	70½	107	44½	4700	Carrier	Open D	50	1750	3	*	R-22	144	Shell & Coil	Shell & Tube
PLC50H	47.1	70½	107	44½	4600	Carrier	Hermetic	50	1750	3	*	R-22	144	Shell & Coil	Shell & Tube
PLC60D	55.7	70½	107	44½	5200	Carrier	Open D	60	1750	3	*	R-22	155	Shell & Coil	Shell & Tube
PLC60H	55.7	70½	107	44½	5100	Carrier	Hermetic	60	1750	3	*	R-22	155	Shell & Coil	Shell & Tube
PLC75D	76.3	76	145	45	6500	Carrier	Open D	75	1750	3	*	R-22	237	Shell & Coil	Shell & Tube
PLC100D	102	80½	145	47½	7900	Carrier	Open D	100	1750	3	*	R-22	245	Shell & Coil	Shell & Tube
PLC125D	110	80½	145	47½	8500	Carrier	Open D	125	1750	3	*	R-22	276	Shell & Coil	Shell & Tube
PLC150D	147	81	169	48½	10600	Carrier	Open D	150	1750	3	*	R-22	325	Shell & Coil	Shell & Tube
*Open unit voltages available: 208, 220, 440, 550, and other standard voltages. Hermetic units available for 208, 220, 440, 550, and 380 volts.															
Kohlenberger—Kohlenberger Engineering Corp., P.O. Box 432, Fullerton, Calif.															
KWC-10-R1	9.2	55⅝	51¾	32	1475	Kohlenberger	Open D	10	1750	3	220/440	R-12	15	Direct Expansion	Shell & Tube
KWC-20-R1	18	61⅞	53¼	36	2550	Kohlenberger	Open D	20	1750	3	220/440	R-12	25	Direct Expansion	Shell & Tube
KWC-30-R2	32	73¼	101¼	46	4450	Kohlenberger	Open B	30	1750	3	220/440	R-22	35	Direct Expansion	Shell & Tube
KWC-40-R2	42	74½	101⅛	46¾	4900	Kohlenberger	Open B	40	1750	3	220/440	R-22	60	Direct Expansion	Shell & Tube
KWC-50-R2	53	74½	102	52¾	6150	Kohlenberger	Open B	50	1750	3	220/440	R-22	85	Direct Expansion	Shell & Tube
KWC-60-R2	62	79	102	54½	6800	Kohlenberger	Open B	60	1750	3	220/440	R-22	100	Direct Expansion	Shell & Tube
KWC-75-R2	83	79	102	54½	7900	Kohlenberger	Open B	75	1750	3	220/440	R-22	125	Direct Expansion	Shell & Tube
KWC-100-R2	87	82	102¾	62	9200	Kohlenberger	Open B	100	1750	3	220/440	R-22	150	Direct Expansion	Shell & Tube
Ready-Power—Ready-Power Co., 11231 Freud, Detroit 14, Mich.															
CP22	22.6	72	156	36	6550		Reciprocating* D	....	....	....	....	R-12	....	....	....
CP37	37.2	72	216	36	7400		Reciprocating* D	....	....	....	....	R-12	....	....	....
CP51	51.3	72	180	42	8400		Reciprocating* D	....	....	....	....	R-12	....	....	....
CP103	103	72	240	48	15340		Reciprocating* D	....	....	....	....	R-12	....	....	....
RCP20	20.1	60	132	36	4310		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP25	25.1	60	144	36	4450		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP30	30.1	60	156	36	4990		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP40	41.7	60	144	36	5950		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP50	50.0	60	168	36	6340		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP60	59.0	66	162	36	7040		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP65	65.0	72	144	36	10000		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP80	81.2	72	168	48	10760		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP100	99.7	72	204	48	11530		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP120	133.1	72	180	48	12330		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP130	130.3	72	168	48	13080		Reciprocating* D	....	....	....	....	R-22	....	....	....
RCP140	140.4	72	168	48	17560		Reciprocating* D	....	....	....	....	R-22	....	....	....
*Natural gas engine compressor.															
Thermatrol—Schnacke, Inc., 1101 No. Governor, Evansville, Ind.															
CT-10	9.5	72	84	33	2200	Thermatrol	Open B	10	1200	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CTD-15	13.7	74	84	33	2470	Thermatrol	Open D	15	1750	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CF-20	19.5	77	108	33	3250	Thermatrol	Open B	20	1150	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CFD-20	19.5	77	108	33	3260	Thermatrol	Open D	20	1150	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CF-25	24.0	77	126	33	3700	Thermatrol	Open B	25	1480	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CFD-30	28.9	79	120	33	4100	Thermatrol	Open D	30	1750	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CE-40	38.6	80	144	41½	5590	Thermatrol	Open B	40	1150	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CED-40	38.6	80	144	39	5760	Thermatrol	Open D	40	1150	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CE-50	46.0	84	132	41½	5900	Thermatrol	Open B	50	1400	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CED-60	57.6	88	120	39	6370	Thermatrol	Open D	60	1750	3	220/440	R-12	Oper.	DX Shell & Tube	Cleanable S. & T.
CTT-10	9.7	74	79	33	2900	Thermatrol	Open B	10	840	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CTT-15	15.0	74	91	33	3200	Thermatrol	Open B	15	1320	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CFT-20	20.0	76	104	33	3600	Thermatrol	Open B	20	830	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CFT-25	24.2	78	104	33	4100	Thermatrol	Open B	25	890	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CFT-30	30.0	78	116	33	4400	Thermatrol	Open B	30	1240	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CFT-40	36.5	78	140	42	5000	Thermatrol	Open B	40	1520	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CET-50	50.0	80	140	42	6200	Thermatrol	Open B	50	1040	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CET-60	60.0	82	140	46	7400	Thermatrol	Open B	60	1280	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
CET-75	74.0	84	140	46	8200	Thermatrol	Open B	75	1520	3	220/440	R-22	Oper.	DX Shell & Tube	Cleanable S. & T.
Also has specification line of chillers built to meet the actual specifications of the job.															

Packaged Water Chillers for Air Conditioning (continued)

Model No.	Capacity (Nom. Tons)	Overall Dimensions (In.) Height	Length	Depth	Operating Weight (Lbs.)	Compressor Make	Compressor Type	Compressor Motor Hp.	RPM	Phase	Volts	Refrigerant No.	Charge	Cooler Type	Condenser Type
Typhoon—Typhoon Heat Pump Co., 2001 Garcia Ave., Tampa, Fla.															
WC35H	2.5	33	24	24	410	Tecumseh	Hermetic	2	1725	1—3	230/208/220	R-22	3.2	Tube In Tube	Tube In Tube
WC55H	3.75	33	24	24	440	Tecumseh	Hermetic	3	1725	1—3	230/208/220	R-22	3.5	Tube In Tube	Tube In Tube
WC80H	6.0	43	28	28	720	Tecumseh	Hermetic	5	1725	1—3	230/208/220	R-22	5.5	Tube In Tube	Tube In Tube
WC120H	7.5	42	28	28	1130	Copeland	Semi-Hermetic	7½	1725	3	208/220/440	R-22	9.5	Tube In Tube	Tube In Tube
WC150H	10.0	43	28	28	1300	Copeland	Semi-Hermetic	10	1725	3	208/220/440	R-22	13.5	Tube In Tube	Tube In Tube
WC225H	15	39	28	28	1450	Brunner	Semi-Hermetic	15	1725	3	208/220/440	R-22	15.5	Tube In Tube	Tube In Tube
WC300-2H	20	60	62	34	2280	Copeland	Semi-Hermetic	20	1725	3	208/220/440	R-22	34.0	Tube In Tube	Tube In Tube
WC375-2H	25	60	62	34	2475	Brunner	Semi-Hermetic	25	1725	3	208/220/440	R-22	39.0	Tube In Tube	Tube In Tube
WC450-2H	30	60	62	34	3500	Brunner	Semi-Hermetic	30	1725	3	208/220/440	R-22	47.5	Tube In Tube	Tube In Tube
WC600-3H	40	70	62	34	3650	Brunner	Semi-Hermetic	40	1725	3	208/220/440	R-22	67.5	Tube In Tube	Tube In Tube
WC675-3H	45	70	62	34	3750	Brunner	Semi-Hermetic	45	1725	3	208/220/440	R-22	75.0	Tube In Tube	Tube In Tube
WC750-4H	50	86	84	45	4200	Brunner	Semi-Hermetic	50	1725	3	208/220/440	R-22	82.5	Tube In Tube	Tube In Tube
WC900-4H	60	86	84	45	4500	Brunner	Semi-Hermetic	60	1725	3	208/220/440	R-22	97.5	Tube In Tube	Tube In Tube
WC1125-5H	75	98	84	45	4900	Brunner	Semi-Hermetic	75	1725	3	208/220/440	R-22	120.0	Tube In Tube	Tube In Tube
Uni-Chiller—The Vilter Mfg. Co., 2217 So. First St., Milwaukee, Wis.															
UCFS2	16.0	72	155	51	4800	Vilter	Open B	20	1750	3	220	R-12	47	Direct Expansion	Shell & Tube
UCFS4	32.7	78	155	51	7950	Vilter	Open B	40	1750	3	220	R-12	114	Direct Expansion	Shell & Tube
UCFS6	47.7	78	179	51	9000	Vilter	Open B	50	1750	3	220	R-12	137	Direct Expansion	Shell & Tube
UCFS8	65.0	88	179	53	11200	Vilter	Open B	75	1750	3	220	R-12	210	Direct Expansion	Shell & Tube
UCFH2	18.7	72	179	51	5100	Vilter	Open B	25	1750	3	220	R-12	57	Direct Expansion	Shell & Tube
UCFH4	37.3	78	155	51	8400	Vilter	Open B	50	1750	3	220	R-12	114	Direct Expansion	Shell & Tube
UCFH6	56.0	70	155	51	10760	Vilter	Open B	75	1750	3	220	R-12	175	Direct Expansion	Shell & Tube
UCFH8	70.3	88	179	53	11850	Vilter	Open B	100	1750	3	220	R-12	210	Direct Expansion	Shell & Tube
UCF22S2	25.2	74	146	51	5470	Vilter	Open B	30	1750	3	220	R-22	59	Direct Expansion	Shell & Tube
UCF22S4	52.0	82	146	51	9740	Vilter	Open B	50	1750	3	220	R-22	160	Direct Expansion	Shell & Tube
UCF22S6	78.0	86	146	51	12250	Vilter	Open B	75	1750	3	220	R-22	244	Direct Expansion	Shell & Tube
UCF22S8	102.5	92	170	53	13850	Vilter	Open B	100	1750	3	220	R-22	294	Direct Expansion	Shell & Tube
UsAirco—United States Air Conditioning Corp., P. O. Box 360, Delaware, Ohio															
ICW-10	10.0	45	68⅛	26⅞	1450	Copeland	Open D	10	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-15	15.0	53½	93⅝	29	2100	Copeland	Open D	7½(2)	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-20	18.9	60	133⅜	32¼	3100	Bendix-West.	Open B	20	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-25	23.6	62⅞	122½	32¼	3400	Bendix-West.	Open B	25	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-30	30.5	64⅝	134⅞	32¼	3800	Bendix-West.	Open B	30	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-40	40.5	70½	137⅝	39½	5000	Bendix-West.	Open B	40	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-50	50.0	70½	161⅞	39½	5500	Bendix-West.	Open B	50	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-60	55.1	70¾	126⅛	42	6000	Bendix-West.	Open B	60	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-75	74.3	84	141⅞	53⅜	8700	Bendix-West.	Open B	75	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-100	100.5	84⅜	191⅛	53⅜	10000	Bendix-West.	Open B	100	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-125	122.0	88⅜	158⅞	53⅜	10900	Bendix-West.	Open B	125	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICW-150	148.0	98⅛	186⅞	55⅜	14050	Bendix-West.	Open B	150	1750	3	220	R-22	....	Direct Expansion	Shell & Tube
ICA-10	10.0	61¾	95⅛	37⅜	3000	Copeland	Open D	10	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-15	13.9	73⅝	113⅞	41¾	4330	Copeland	Open D	7½(2)	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-20	19.4	73⅝	113⅞	41¾	4960	Bendix-West.	Open B	20	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-25	23.6	77⅛	124⅞	48⅛	5150	Bendix-West.	Open B	25	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-30	30.4	84⅛	136⅞	53¼	6750	Bendix-West.	Open B	30	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-40	40.9	93¼	145⅛	60¼	7850	Bendix-West.	Open B	40	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-50	51.0	105⅛	187⅛	60¼	10000	Bendix-West.	Open B	50	1750	3	220	R-22	....	Direct Expansion	Evaporative
ICA-60	55.9	103⅛	217⅛	64¼	12000	Bendix-West.	Open B	60	1750	3	220	R-22	....	Direct Expansion	Evaporative
Weather King—Weatherking of Florida, Inc., 2310 Coolidge, Orlando, Fla.															
WKWC3	2.8	29	26	26	350	Tecumseh	Hermetic	3	1750	1—3	230	R-22	7	Shell & Coil	Tube In Tube
WKWC5	4.9	63	29	29	650	Tecumseh	Hermetic	5	1750	1—3	230	R-22	10	Shell & Coil	Tube In Tube
WKWC7½	7.6	63	29	29	750	Copeland	Semi-Hermetic	7½	1750	3	230	R-22	13	Shell & Coil	Tube In Tube
WKWC10	9.3	63	29	29	870	Copeland	Semi-Hermetic	10	1750	3	230	R-22	15	Shell & Coil	Tube In Tube
WKWCA3	2.4†	32	61	29	550	Tecumseh	Hermetic	3	1750	1—3	230	R-22	10	Shell & Coil	Fin & Tube
WKWCA5	4.4†	61	61	29	800	Tecumseh	Hermetic	5	1750	1—3	230	R-22	18	Shell & Coil	Fin & Tube
WKWCA7½	6.7†	61	61	29	900	Copeland	Semi-Hermetic	7½	1750	3	230	R-22	26	Shell & Coil	Fin & Tube
WKWCA10	8.4†	61	61	29	1100	Copeland	Semi-Hermetic	10	1750	3	230	R-22	30	Shell & Coil	Fin & Tube

†95° ambient.

Westinghouse—Westinghouse Electric Corp., P. O. Box 510, Staunton, Va.															
PKA-86	20	69	78⅛	28½	2000	Westinghouse	Hermetic	20	1750	3	As Req'd	R-12	54	Dry Expansion	Shell & Tube
PKA-108	25	71	78⅛	28½	2180	Westinghouse	Hermetic	25	1750	3	As Req'd	R-12	58	Dry Expansion	Shell & Tube
PKA-125	30	71	105⅛	28½	2580	Westinghouse	Hermetic	30	1750	3	As Req'd	R-22	98	Dry Expansion	Shell & Tube
PKA-150	40	72½	105⅛	28½	2820	Westinghouse	Hermetic	40	1750	3	As Req'd	R-22	107	Dry Expansion	Shell & Tube
PKA-165	50	85¼	107	35	4580	Westinghouse	Hermetic	50	880	3	As Req'd	R-12	134	Dry Expansion	Shell & Tube
PKA-210	60	85¼	107	35	4760	Westinghouse	Hermetic	60	1180	3	As Req'd	R-12	135	Dry Expansion	Shell & Tube
PKA-315	75	91⅜	107¼	35	6180	Westinghouse	Hermetic	75	880	3	As Req'd	R-12	153	Dry Expansion	Shell & Tube
PKA-420	110	97⅜	131½	35	8050	Westinghouse	Hermetic	110	1180	3	As Req'd	R-12	283	Dry Expansion	Shell & Tube
Worthington—Worthington Corp., Ampere Station, E. Orange, N. J.															
FCV 150	15	60	89	22	1900	Worthington	Open D	15	1750	3	220/440	R-22	35	Dry Expansion	Shell & Tube
FCV 200	20	62	89	22	2400	Worthington	Open D	20	1750	3	220/440	R-22	46	Dry Expansion	Shell & Tube
FCV 250	25	62	89	22	2500	Worthington	Open D	25	1750	3	220/440	R-22	48	Dry Expansion	Shell & Tube
FCV 300	30	64	89	22	3000	Worthington	Open D	30	1750	3	220/440	R-22	64	Dry Expansion	Shell & Tube
FCV 400	40	75	102	29	3500	Worthington	Open D	40	1750	3	220/440	R-22	79	Dry Expansion	Shell & Tube
FCV 500	50	77	106	29	3800	Worthington	Open D	50	1750	3	220/440	R-22	96	Dry Expansion	Shell & Tube
FCV 600	60	77	106	29	4400	Worthington	Open D	60	1750	3	220/440	R-22	104	Dry Expansion	Shell & Tube
FCV 750	75	82	106	29	4600	Worthington	Open D	75	1750	3	220/440	R-22	143	Dry Expansion	Shell & Tube

FCH (5 hp. to 75 hp.—dimensions as above) W—Semi-Hermetic D. LCP (10 to 200 hp.—dimensions dependent on chiller selection) W—Open B.

York-Hydraline—York Corp., Subsidiary of Borg-Warner Corp., York, Pa.															
HC3W	2.6	31⅛	23¾	18	275	York	Hermetic	3	1750	1—3	208/230	R-22	2.7	Tube In Tube	Tube In Tube
HC5W	4.5	34½	31	20	500	York	Hermetic	5	1750	1—3	208/230	R-22	5.4	Tube In Tube	Tube In Tube
DHP-8	6.9	40¼	75	26⅜	1150	York	Hermetic	7½	1750	3	208/220/440	R-22	15	DX Shell & Coil	Shell & Coil
DHP-10	9.1	48¾	87¾	29	1510	York	Hermetic	5(2)	1750	3	208/220/440	R-22	20	DX Shell & Tube	Shell & Coil
DHP-15	13.9	48¾	99½	29	2080	York	Hermetic	7½(2)	1750	3	208/220/440	R-22	30	DX Shell & Tube	Shell & Coil
2H20	19.0	54⅝	104⅜	35	3900	York	Semi-Hermetic	20	1750	3	208/220/440	R-12	100	Flooded S. & T.	Shell & Tube
2H25	24.5	54⅝	104⅜	35	3940	York	Semi-Hermetic	25	1750	3	208/220/440	R-22	100	Flooded S. & T.	Shell & Tube
2H30	29.1	54⅝	104⅜	35	4120	York	Semi-Hermetic	30	1750	3	208/220/440	R-22	100	Flooded S. & T.	Shell & Tube
2H45	43.7	54⅝	129¾	36	5490	York	Semi-Hermetic	40	1750	3	208/220/440	R-22	176	Flooded S. & T.	Shell & Tube
3D50	49.0	74½	153⅜	57½	7500	York	Open D	50	1750	3	208/220/440	R-12	214	Flooded S. & T.	Shell & Tube
3D75	77.4	80½	157½	57½	9165	York	Open D	75	1750	3	208/220/440	R-22	278	Flooded S. & T.	Shell & Tube
3D100	103.0	82½	159	57½	10740	York	Open D	100	1750	3	208/220/440	R-22	468	Flooded S. & T.	Shell & Tube
3D125	129.5	86½	160¼	67½	13685	York	Open D	125	1750	3	208/220/440	R-12	564	Flooded S. & T.	Shell & Tube
3D150	160.8	90½	161½	67½	15190	York	Open D	150	1750	3	208/220/440	R-22	660	Flooded S. & T.	Shell & Tube
3D200	216.0	96½	163¼	69½	19000	York	Open D	200	1750	3	208/220/440	R-22	906	Flooded S. & T.	Shell & Tube
								Nominal Range							
3B-1	51.5	88	154	47¼	6510	York	Open B	30-60	1750	3	208/220/440	R-22	214	Flooded S. & T.	Shell & Tube
3B-2	52.6	92	154	47¼	7530	York	Open B	30-60	1750	3	208/220/440	R-22	278	Flooded S. & T.	Shell & Tube
3B-3	77.0	92	154	47¼	7985	York	Open B	50-75	1750	3	208/220/440	R-22	278	Flooded S. & T.	Shell & Tube
MT-4	68.5	80	124	60	8700	York	SH Centrifugal	75	3600	3	*	R-11	530	Flooded S. & T.	Shell & Tube
MT-5	77.0	80	124	60	8700	York	SH Centrifugal	82.5	3600	3	*	R-11	530	Flooded S. & T.	Shell & Tube
MT-6	96.5	80	148	60	9560	York	SH Centrifugal	100	3600	3	*	R-11	660	Flooded S. & T.	Shell & Tube
MT-7	105.5	80	148	60	9560	York	SH Centrifugal	110	3600	3	*	R-11	660	Flooded S. & T.	Shell & Tube
MT-8	123.0	80	172	60	10530	York	SH Centrifugal	125	3600	3	*	R-11	800	Flooded S. & T.	Shell & Tube
MT-9	132.5	80	172	60	10530	York	SH Centrifugal	137.5	3600	3	*	R-11	800	Flooded S. & T.	Shell & Tube

Note: All packaged chillers, above, available for use with evaporative condensers or remote air-cooled condensers. (Model number changes for chillers used with remote air cooled or evaporative condensers.) *Available as 208, 220, 240, 440, 480, 550, 2300, and 4160 volts.

ARE you in need of a "just right" man to fill a slot in your organization—the man you are looking for will be reading the

NEWS' CLASSIFIED ADS

Robert H. Hoagland Elected by Gordon Co.

CHICAGO—Robert H. Hoagland has been elected vice president and general manager of Claud S. Gordon Co. here, manufacturer of thermocouple wire, precision drilled wells, pyrometers, and thermocouple assemblies.

The company is a subsidiary of Cleveland Pneumatic Industries, Inc. Hoagland was formerly vice president of Aerovox Corp.

SEND FOR REPRINTS

"SERVICE MAINTENANCE CONTRACTS AND AVERAGE CHARGES FOR SERVICE PARTS AND OPERATIONS."

Only 50¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Packaged Liquid Chillers for Air Conditioning (concluded)

Model No.	Capacity (Nom. Tons)	Overall Dimensions (In.) Height	Length	Depth	Operating Weight (Lbs.)	Compressor Make	Compressor Type	Compressor Motor Hp.	RPM	Phase	Volts	Refrigerant No.	Charge	Cooler Type	Condenser Type
Governair—Governair Corp., 4840 N. Sewell, Oklahoma City 18, Okla.															
CPS-15	15	83	62	44	2300	....	Open B	15	1750	3	220	R-22	34	Direct Expansion	Shell & Tube
CPS-20	20	179	66	44	2700	....	Open B	20	1750	3	220	R-22	45	Direct Expansion	Shell & Tube
CPS-25	23.6	179	78	46	2900	....	Open D	25	1750	3	220	R-22	56	Direct Expansion	Shell & Tube
CPS-30	30.4	96	75	46	3300	....	Open B	30	1750	3	220	R-22	68	Direct Expansion	Shell & Tube
CPS-40	37.1	96	76	49	4100	....	Open D	40	1750	3	220	R-22	90	Direct Expansion	Shell & Tube
CPS-50	50.5	96	82	51	4850	....	Open B	50	1750	3	220	R-22	112	Direct Expansion	Shell & Tube
CPS-60	56.5	101	82	53	5300	....	Open D	60	1750	3	220	R-22	135	Direct Expansion	Shell & Tube
CPS-75	72.5	96	82	71	5900	....	Open D	75	1750	3	440	R-22	180	Direct Expansion	Shell & Tube
CPS-100	96.0	127	90	57	17700	....	Open D	100	1750	3	440	R-22	225	Direct Expansion	Shell & Tube
CPS-125	113	108	99	65	8700	....	Open D	125	1750	3	440	R-22	282	Direct Expansion	Shell & Tube
CPS-MH-15	13.9	83	62	44	1500	....	Hermetic	15	1750	3	220	R-22	34	Direct Expansion	Shell & Tube
CPS-MH-20	18.7	179	66	44	2010	....	Hermetic	20	1750	3	220	R-22	45	Direct Expansion	Shell & Tube
CPS-MH-25	23.2	179	78	46	2335	....	Hermetic	25	1750	3	220	R-22	56	Direct Expansion	Shell & Tube
CPS-MH-30	28.4	96	75	46	2400	...	Hermetic	30	1750	3	220	R-22	68	Direct Expansion	Shell & Tube
CPS-MH-40	37.7	96	76	49	3600	....	Hermetic	40	1750	3	220	R-22	90	Direct Expansion	Shell & Tube
CPS-MH-50	46.5	96	82	51	4160	....	Hermetic	50	1750	3	220	R-22	112	Direct Expansion	Shell & Tube
CPS-MH-60	56.6	101	82	53	4480	....	Hermetic	60	1750	3	220	R-22	135	Direct Expansion	Shell & Tube
CPS-MH-15A	14.7	83	62	44	1800	....	Hermetic	15	1750	3	220	R-22	34	Direct Expansion	Shell & Tube
CPS-MH-20A	18.9	179	66	44	2210	....	Hermetic	20	1750	3	220	R-22	45	Direct Expansion	Shell & Tube
CPS-MH-30A	29.5	96	75	46	2580	....	Hermetic	30	1750	3	220	R-22	68	Direct Expansion	Shell & Tube
CPS-MH-40A	37.8	96	76	49	3850	....	Hermetic	40	1750	3	220	R-22	90	Direct Expansion	Shell & Tube
CPS-MH-60A	59.0	101	82	53	4680	....	Hermetic	60	1750	3	220	R-22	135	Direct Expansion	Shell & Tube
SCC-15	14.4	61¾	107¾	54¾	6000	....	Open B	15	1750	3	220	R-22	34	Direct Expansion	Evaporative
SCC-20	20.5	68¾	126¾	54¾	6800	....	Open B	20	1750	3	220	R-22	45	Direct Expansion	Evaporative
SCC-25	23.8	70¾	125¾	60¾	7185	....	Open D	25	1750	3	220	R-22	56	Direct Expansion	Evaporative
SCC-30	31.2	72¾	137¾	65¾	8600	....	Open B	30	1750	3	220	R-22	68	Direct Expansion	Evaporative
SCC-40	37.6	74¾	133¾	75¾	10700	....	Open D	40	1750	3	220	R-22	90	Direct Expansion	Evaporative
SCC-50	50.5	76¾	150¾	80¾	12500	....	Open B	50	1750	3	220	R-22	112	Direct Expansion	Evaporative
SCC-60	56.9	81¾	146¾	81¾	14800	....	Open D	60	1750	3	220	R-22	135	Direct Expansion	Evaporative
SCC-75	74.6	87¾	217¾	87¾	17400	....	Open D	75	1750	3	440	R-22	180	Direct Expansion	Evaporative
SCC-100	97.5	96¾	183¾	115¾	22400	....	Open D	100	1750	3	440	R-22	225	Direct Expansion	Evaporative
SCC-125	114.0	89¾	228¾	112¾	27100	....	Open D	125	1750	3	440	R-22	282	Direct Expansion	Evaporative
SCC-MH-15	14.3	61¾	102¾	52¾	5300	....	Hermetic	15	1750	3	220	R-22	34	Direct Expansion	Evaporative
SCC-MH-20	18.8	68¾	125¾	54¾	6100	....	Hermetic	20	1750	3	220	R-22	45	Direct Expansion	Evaporative
SCC-MH-25	23.8	70¾	125¾	60¾	6700	....	Hermetic	25	1750	3	220	R-22	56	Direct Expansion	Evaporative
SCC-MH-30	29.2	72¾	123¾	65¾	7700	....	Hermetic	30	1750	3	220	R-22	68	Direct Expansion	Evaporative
SCC-MH-40	38.0	74¾	155¾	75¾	10100	....	Hermetic	40	1750	3	220	R-22	90	Direct Expansion	Evaporative
SCC-MH-50	48.0	76¾	166¾	78¾	11800	....	Hermetic	50	1750	3	220	R-22	112	Direct Expansion	Evaporative
SCC-MH-60	57.6	81¾	167¾	81¾	13900	....	Hermetic	60	1750	3	220	R-22	135	Direct Expansion	Evaporative
SCC-MH-15A	15.0	61¾	102¾	54¾	5500	....	Hermetic	15	1750	3	220	R-22	34	Direct Expansion	Evaporative
SCC-MH-20A	19.2	68¾	125¾	54¾	6300	....	Hermetic	20	1750	3	220	R-22	45	Direct Expansion	Evaporative
SCC-MH-30A	29.8	72¾	123¾	65¾	7880	....	Hermetic	30	1750	3	220	R-22	56	Direct Expansion	Evaporative
SCC-MH-40A	38.7	74¾	155¾	75¾	10350	....	Hermetic	40	1750	3	220	R-22	90	Direct Expansion	Evaporative
SCC-MH-60A	59.3	81¾	167¾	81¾	14180	....	Hermetic	60	1750	3	220	R-22	135	Direct Expansion	Evaporative

All models are rated at 53° to 45° chilled water, .001 fouling factor. SCC models are rated at 78° EWB on evaporative condenser.

THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT

Crane Appoints Burley Sales Vice Pres., Establishes 4 Other Major Sales Positions

CHICAGO — George F. Burley has been reappointed vice president for sales of Crane Co., and the establishment of four other major sales positions was announced by L. H. T. Clegg, acting president.

Burley joined Crane as vice president in December, 1957. The other appointments were:

Darrel R. Nordwall, general manager of branch sales; Charles H. Lovelace, general manager of engineering sales; R. W. Lindsay, general manager of wholesaler sales, an area in which Crane expects expanded activity; and Clarence E. Watson, general manager of atomic energy sales.

Nordwall, a 27-year veteran of Crane Co.'s sales department, was promoted to the company's general office in March, 1958, from the managership of its west coast district office at Los Angeles.

Lovelace, who joined Crane in 1938, has been in charge of its industrial sales and merchandising for three years. Lindsay moves to his new assignment from New York City where he was manager of Crane's eastern sales district, it was noted.

U.L. & A.S.M.E. WATER-COOLED CONDENSERS ¼ TON to 15 TONS and LIQUID RECEIVERS for EVERY REQUIREMENT

Write for our NEW Catalog

STANDARD REFRIGERATION CO.
6034 W. North Ave.
Chicago 39, Illinois

For Your Reprint Copy

"Short, Short Course in Air Conditioning Fundamentals." By D. C. Schaffer.

Mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

"Work Fine in '59"

DON'T GAMBLE WITH HARSH CHEMICALS – USE

SOLVEX®

Your Best Deal!

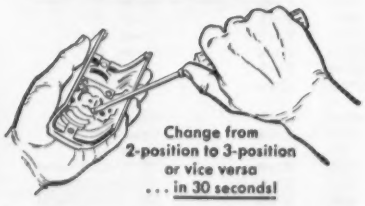
For Water-Cooled Equipment

Regular Solvex — **Solvex Maintenance**
Ultra Solvex — **Solvex Algae Control**
CSCO Ice Machine Cleaner

See your Wholesaler or write:

CHEMICAL SOLVENT CO.
P. O. Box 487 — Birmingham, Ala.

Reduce Inventory with this Two-in-One Selector Switch



Bulletin 800 Selector Switch

A-B QUALITY

Here's the most handy selector switch on the market today—the Allen-Bradley standard duty Bulletin 800. It is good for either 2- or 3-position operation... and the changeover from one to the other takes only 30 seconds. Simply loosen two screws, rotate a metal disc through 90°, retighten the screws... and the job's done.

The operating lever is "positive" in action. Maintenance free, double break, silver alloy contacts are protected in the cover—careless wiring cannot cause trouble.

Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.
In Canada: Allen-Bradley Canada Ltd., Galt, Ont.

ALLEN-BRADLEY
Quality Motor Control

5-Day Gas Air Conditioning School Opens In Dallas June 1 Under AGA Sponsorship

NEW YORK CITY—A five-day gas air conditioning sales school will get under way Monday morning, June 1, at the Hotel Baker in Dallas, according to the Industrial & Commercial Gas Section of the American Gas Association.

Objective of the school is to assist gas companies and gas air conditioning equipment manufacturers in training their personnel in the technical and sales aspects of gas air conditioning.

During the course, 34 speakers will cover the fundamentals of all types of air conditioning systems, together with the available equipment to meet cooling demands from a few tons to thousands of tons, according to the school program.

In addition, the students will observe operation of several different types of air conditioning equipment during a one-day field trip.

Registration is limited to 150. The school is open to employes of gas companies, gas equipment manufacturers and dealers, and present and prospective gas customers. Tuition fee is $50. Registration closes May 25.

The program follows:

MONDAY, JUNE 1

Presiding: Robert H. Combs, chairman, Air Conditioning & Heating Committee, AGA.

8:30 a.m.—Registration.

9:30 a.m.—School opening. Greetings: E. A. Brown, executive vice president-operations, Lone Star Gas Co.

10 a.m.—"Air Conditioning Systems," Prof. Paul J. Grogan, Dept. of Engineering, University of Wisconsin.

10:30 a.m.—"Fundamentals of Reciprocating and Centrifugal Compressor Systems," Robert K. Hall, manager, refrigeration and air conditioning, The Ready-Power Co.

11:30 a.m.—Luncheon.

1 p.m.—"Systems Using Gas Engine Prime Movers," Norbert K. Hall.

1:45 p.m.—"Systems Using Steam Turbine Prime Movers," J. C. Conrad, manager, centrifugal refrigeration sales, Worthington Corp.; C. C. Woods, turbine engineer, A. M. Lockett & Co., Ltd.

2:30 p.m.—"Steam Generation for Turbine Driven and Absorption Systems," R. F. Mendow, vice president, engineering, A. M. Lockett & Co., Ltd.

3:15 p.m.—"Air Conditioning Installations Utilizing Steam Turbine and Gas Engine Drive," John F. Moore, chief engineer, Lone Star Gas Co.

4 p.m. — Speakers' question and answer panel.

TUESDAY, JUNE 2.

Presiding: A. B. Banowsky, Utilization Sales Div., United Gas Corp.

8:30 a.m.—"Fundamentals of the Absorption System," I. E. Rowe, utilization director, United Gas Corp.

9:05 a.m.—"Large Volume Absorption Systems," Robert M. Wilson, manager, Large Tonnage Div., Arkla Air Conditioning Corp.; G. Owen Kuhen, sales manager, Mechanical Systems Div., Carrier Corp.; John G. Reid, Jr., absorption systems, York Div., Borg-Warner Corp.

11:30 a.m.—Speakers' question and answer panel.

Noon—Luncheon.

1 p.m.—"Humidity Control by Liquid Absorption," F. M. Johnson, sales manager, Surface Combustion Corp.

1:45 p.m.—"Humidity Control by Dry Adsorption," Robert E. Roberts, manager, air dryer, Bryant Mfg. Co.

2:30 p.m.—"Small Commercial Air Conditioning Application," A. B. Banowsky.

3 p.m.—"New Equipment on the Way," Robert Smith, assistant director of research, AGA.

3:45 p.m.—"Gas Turbines for Air Conditioning," C. P. Apitz, special representative, gas turbine sales, Clark Brothers Co.

4:30 p.m.—Speakers' question and answer panel.

6:30 p.m.—Dinner. Slide film presentation, "The Economics of Gas Air Conditioning," W. P. Dickson, Minneapolis-Honeywell Regulator Co.

WEDNESDAY, JUNE 3

Presiding: John F. Moore, chief engineer, Lone Star Gas Co.

Full day field trip, during which the group will be shown in operation a steam turbine-driven unit, absorption units, a 25-ton water chiller, and a gas engine driven unit.

THURSDAY, JUNE 4

Presiding: Charles C. Eeles, manager, industrial sales, Ohio Fuel Gas Co.

8:30 a.m.—"Selection and Sizing of Cooling Towers and the Estimating of Water Requirements," Watson Kenney, engineer, W. E. Lewis & Co.

9 a.m.—"Factors Favoring Gas," Jesse Dykes, utilization engineer, New Orleans Public Service, Inc.

10 a.m.—"Comparative Cost Analysis," Donald M. Mayne, marketing consultant.

Noon—Luncheon period.

1:30 p.m.—Speakers' question and answer panel.

2 p.m.—"Cooling Load Estimation," W. Roger Sarno, assistant utilization engineer, AGA.

3 p.m.—"Central Systems for Air Conditioning Large Buildings with Gas," Donald W. Loosely, Carrier Corp.

3:30 p.m.—"Construction Problems of Large Installations," F. L. McFadden, Jr., engineer, Zumwalt & Vinter.

4 p.m.—"An Approach to Servicing Large Volume Equipment," M. E. Orelup, general air conditioning engineer, Oklahoma Natural Gas Co.

4:30 p.m.—Speakers' question and answer panel.

FRIDAY, JUNE 5

Presiding: Paul E. Chamberlin, air conditioning engineer, The Gas Service Co.

8:30 a.m.—"Electric Heat Pump as Competition," E. F. Davis, general sales manager, Chattanooga Gas Co.

9 a.m.—"Market Opportunities for Industrial and Commercial Air Conditioning," Ralph Crane, manager, market research, "Freon" Products Div., du Pont.

10 a.m.—"Recommended Sales and Promotion Activities," Robert D. Fink, director of air conditioning, The Gas Service Co.

10:30 a.m.—"Association with You," Ralbern H. Murray, secretary, Industrial & Commercial Gas Section, AGA.

11 a.m.—"Special Air Conditioning Rates," Robert H. Williss, assistant to the president, Stone & Webster Service Corp.

11:30 a.m.—Luncheon.

1 p.m.—"Selling G-A-S to G-S-A," Seward Abbott, utilization engineer, AGA.

1:30 p.m.—Speakers' question and answer panel.

2 p.m.—"Gas Air Conditioning—Get With It," H. Vinton Potter, vice president, Oklahoma Natural Gas Co.

2:30 p.m.—Final examination.

"Corrosion." By Frank J. Versagi—50¢ each.

Get your copy Mail this ad with your name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

NOW... FINISH YOUR SEALING AND CAULKING JOBS FASTER, BETTER, MORE ECONOMICALLY THAN EVER BEFORE!

use

Mortite Caulking Cord

Mortite Caulking Gum

sturdily packaged in handy "tool-kit" size

Lower cost Mortite White Caulking Cord contains three 16-foot rolls, fits any tool kit; 3/16" rope-like cords stay permanently pliable.

Lower cost Mortite White Caulking Gum hand molds into beads, wads, gaskets . . . any shape. Comes in solid one pound slug.

These two sealers, designed by refrigeration servicemen, are perfect for 1001 different jobs:

- Sealing windows, extension wings and openings around window air conditioners
- Sealing breaker strips and joints in air ducts
- Sealing latch and hinge plates, tube entries and cabinet bases

Mail coupon for full information

J-W Mortell COMPANY

Makers of Famous NoDrip Tape and Mortite

J. W. Mortell Co.
549 Burch St., Kankakee, Ill.

O.K.! Send me full information about the complete line of Mortell refrigeration products.

I'm a ☐ Jobber ☐ Dealer ☐ Serviceman

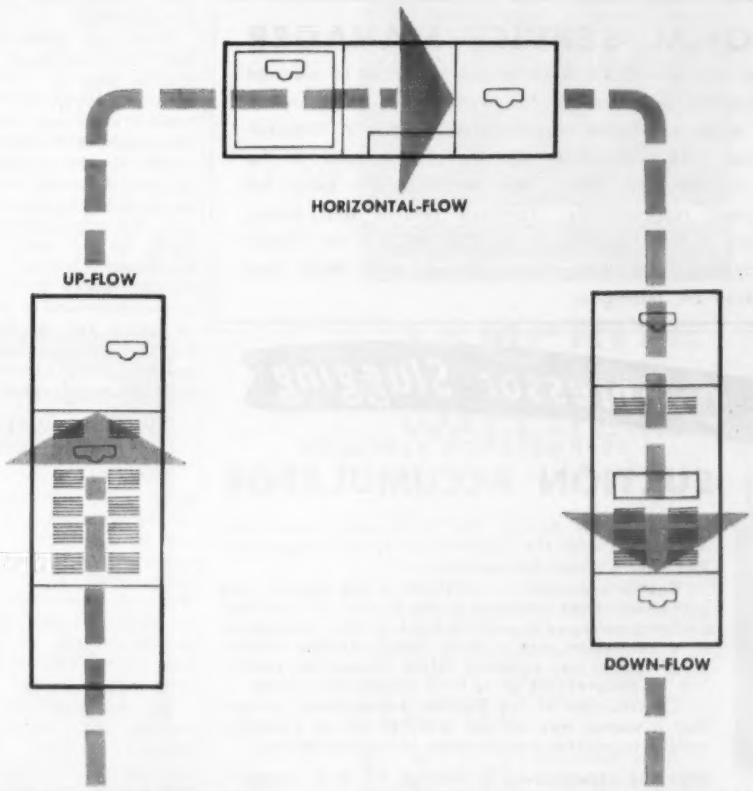
NAME_____

ADDRESS_____

CITY_____ STATE_____

A Full Line of Truly Fine

Residential AIR CONDITIONERS



ARMSTRONG FURNACE COMPANY

Division of NATIONAL UNION ELECTRIC CORPORATION

COLUMBUS OHIO

Rated in accordance with A R I Standard 210-58

Armstrong's complete line of air conditioners provides the answer to any installation. Available in up-flow, independent up-flow, horizontal-flow, independent horizontal-flow and down-flow evaporator models, with condensing units having cooling capacities of two, three and five tons. Only the finest quality components are used in the construction of Armstrong Air Conditioners. They're designed for easy installation and long service-free performance — and they're good-looking, too.

It's not too late to add this fine line of air conditioners for big summertime profits. Write today for full information on this complete line of residential and commercial air conditioners by Armstrong.

ARMSTRONG FURNACE COMPANY • COLUMBUS, OHIO

Refrigeration Problems
And Their Solution
(As Written by Paul Reed)

Water Control Valves with Tower? (2)

From the previous instalment, it will be seen that the water valve must pass about three times as much water in the hot summer weather as in the cool spring and fall weather. Nevertheless, the water valve must be large enough for the high rate of water flow required during the summer.

A water valve has a fixed orifice; that is, the hole in the water valve seat is always the same size. The rate of flow is regulated by how far off the seat the needle is lifted, and this in turn is controlled by the bellows that is actuated by the pressure in the condenser.

If the condenser pressure starts to drop, a spring pushes the needle toward the seat to restrict the water flow, and this causes the condenser pressure to rise. If the pressure starts to go too high—above the pressure that the valve is set to maintain—the bellows pushes the needle far enough off the seat to permit a higher rate of water flow and reduce the head pressure. Thus the valve "throttles" to maintain a constant head pressure.

There is a point at which the needle is far enough off the seat that it ceases to have any effect on the amount of water flowing through the orifice. Raising the needle farther off the seat, above this point, makes no change in the rate of water flow. At this point, the valve is "wide open" and is passing the maximum amount of water of which it is capable.

WATER PRESSURE LIMITS WATER VALVE CAPACITY

When the valve is wide open, the only thing that can affect the rate of water flow through the fixed orifice is a change in water pressure. More accurately, it is the change in pressure difference on the two sides of the orifice, but since the outlet pressure varies so slightly, it is the change in inlet water pressure that determines the rate of water flow through the orifice. If the inlet water pressure rises, more water flows through the valve; if it falls, less water flows through the valve.

Thus the maximum amount of water in gallons per minute (g.p.m.) that a wide open valve can pass depends upon the water pressure to the valve.

Water valves vary somewhat in design, but a typical water valve when wide open, will pass over twice as much water with a 50 p.s.i. water pressure across the valve as with a 10-lb. water pressure. This means that if only 10 p.s.i. water pressure is available to the valve, the valve will have to be very much larger in order to pass the same amount of water than if water pressure at 50 p.s.i.g. is available.

In most cities, the water pressure is usually 50 p.s.i.g. or more, so the water valve supplied on water-cooled units is usually of such a size that it will pass sufficient water for the unit if the water pressure is about 50 p.s.i.g. or above.

LARGER WATER VALVES REQUIRED WITH COOLING TOWERS

If this same water valve is used on a cooling tower, where only 10 p.s.i.g. water pressure is available, it would be far undersize, and would have to be replaced with a much larger valve. These values are not necessarily correct in all cases; conditions vary and water valves vary in design, but the above figures are cited to show that with the low water heads on cooling towers with centrifugal pumps, the water valves must be very much larger than for the same condensing units supplied for use on city water systems having high water pressure.

If water valves are to be used on cooling tower systems, they must be carefully selected on the basis of the ratings of the manufacturer of the water valves. For example, one manufacturer of water valves shows that his ½-in. valve has a maximum capacity of almost 12 tons with a 50-lb. drop across the valve; but that same valve has a capacity of only about 5½ tons with a 10-lb. pressure drop across the valve.

These capacities are based on the valves being wide open, with a 15° temperature rise through the condenser, and the water absorbing 240 B.t.u. per minute from the condenser per ton of refrigeration, which is normal for a condensing unit used on an air conditioner.

One method that has been used is to apply two small water valves in parallel, instead of one large one, with one set to maintain a little lower head pressure than the other. As long as the one valve can maintain the lower head pressure, it alone will open, and the other will open only if the head pressure goes above what the one valve can maintain.

From the foregoing, it will be seen that, although water valves can be used on water-cooled condensers supplied from cooling towers, it is not a simple matter. Manufacturers' data on their water valves should be carefully studied; in fact, it would be well to get in touch with the manufacturer, give him the requirements as to heat loads to be removed from the condenser, temperatures of the cooling water from the tower in the summer and in the spring, type of pump and pressures available for the water valve, and get his specific recommendations and selection of the valve to use.

WARMER WATER FROM THE TOWER

Instead of trying to maintain a constant head pressure by the use of water valves, the same effect can be obtained by supplying the condenser with water at a higher temperature. To do this, the water from the tower would have to be at about the same temperature in spring and fall, even with reduced load on the tower, as in the summer with full load.

In the case of forced draft towers, this can often be done simply by cutting off the fan on the tower. With no forced air circulation of air, much less of the water will be evaporated and consequently much less heat removed. The capacity of the tower will be reduced to more nearly match the reduced load; also the temperature of the water from the tower and to the condenser will be raised.

The fan can be cut off manually by means of a hand switch, or it can be cut off and on automatically according to the water temperature. A remote bulb thermostat of the type commonly used in refrigeration work that closes on rising temperature and opens on falling temperature can be used. It can be set for whatever temperature is necessary to provide the water-cooled condenser with warm enough water to assure normal head pressures. The bulb of the temperature control should be placed in the water in the pan of the tower.

In case the capacities of the tower and of the unit are badly out of balance, for example only one 3-ton conditioner in use on a 15-ton tower, there might still be enough natural draft even with the fan off, to keep the capacity of the tower much greater than that of the one unit. In such extreme cases further measures would have to be taken as described in the next instalment.

(To Be Continued)

Copeland Appoints Russell E. Comstock

SIDNEY, Ohio—Russell E. Comstock has been appointed district representative for Copeland Refrigeration Corp., Rudy Berg, vice president, announced.

R. Comstock

Comstock was formerly associated with Heat-X of Brewster, N. Y. and Brunner Mfg. Co. of Gainsville, Ga. in product development, application, and sales activities. He will headquarter in the southeast and serve several states.

Mackenzie Walton Marks 50th Year

PAWTUCKET, R. I. — Mackenzie Walton Corp. here is currently celebrating its 50th birthday.

The company has been a specialist in the production of precision seamless tubing of copper and copper base alloys for a half century.

The small gage tubing it turns out, is used in such fields as air conditioning, refrigeration, instrumentation, bourdon gage, thermostatics, automotive, and band instruments.

With the addition of new facilities, and as a result of its expanded production capacity, the company is "looking forward to increased contribution to its customers' requirements," it was noted.

Mackenzie Walton is now a wholly-owned subsidiary of Reading Tube Corp.

Bohn Promotes Lindahl, Kayser

DANVILLE, Ill. — H. Blake Thomas, vice president of Bohn Aluminum & Brass Corp. and general manager of Bohn's Betz Div. here, announced that Herbert S. Lindahl has been promoted to chief product engineer-refrigeration, and Gordon Kayser has been made chief product engineer-heating and air conditioning.

H. S. Lindahl

G. Kayser

Kayser, a past president of the Heating & Cooling Coil Manufacturers Association, has spent 19 years in the heating and air conditioning industry. In his new position, he will be concerned with the design and development of new products for residential and industrial heating and air conditioning, it was noted.

Lindahl, who has been associated with the refrigeration industry for the past 10 years, will be responsible for design and development of new products and the improvement of existing products in the commercial refrigeration field.

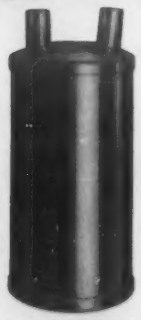
NATIONAL SERVICE MANAGER

Unusual opportunity for experienced executive to manage national service organization for well known independent short line major appliance manufacturer located in Midwest. Prefer older man with some technical background in the consumer refrigeration field. Man selected will have full authority and responsibility. Forward resume and salary requirements in strict confidence to BOX A6263, Air Conditioning, Heating and Refrigeration News, 450 West Fort Street, Detroit 26, Michigan.

Ends Compressor Slugging

REFRIGERATION RESEARCH

SUCTION ACCUMULATOR

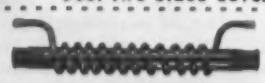


Compressor damage due to slugging ends once and for all with the installation of the Refrigeration Research Suction Accumulator.

Easily and quickly installed in the suction line just ahead of the compressor, the Suction Accumulator *meters* refrigerant and oil back to the compressor at a controlled rate.....even though several pounds of refrigerant may suddenly return through the suction line.....compressors go to work quietly and safely.

Construction of the Suction Accumulator is such that it cannot trap oil and tends to act as a suction muffler to prevent transmission of suction noise.

Just two sizes cover ½ through 7½ H.P. range!



Blue Ribbon Heat Exchangers
Available in sizes from 1/4 through 10 h.p. these competitively priced heat exchangers have parallel fittings sized to match refrigerant lines of standard units.

Bull Dog Filter-Driers
These low cost, quality driers feature progressive filtering.....retain a maximum amount of dirt without pressure drop or plugging up. Available in either Molecular Sieve or Silica Gel desiccant.

REFRIGERATION RESEARCH
INCORPORATED
9901 E. GRAND RIVER BRIGHTON, MICHIGAN
THE "ORIGINAL EQUIPMENT" PARTS MANUFACTURER SINCE 1944

NEW HYDŌ
NONCORROSIVE FLOAT VALVE

Injection Molded of NYLON (Zytel 102X) with Stainless Steel (Type 304) valve parts. 1.5 GPM at 30 PSI. ¼" standard brass connection. Unique design. Shuts off with water pressure. Maintains constant water level, without adjustment, with water pressure varying from 10 to 200 PSI. Trouble-free solid Polyethylene floatball on stainless steel float rod. Try it.

SAMPLE PREPAID $1.00

Austin Manufacturing Corporation
305 Perry-Brooks Building
Austin 1, Texas

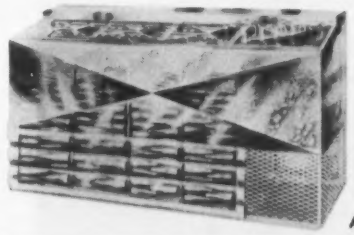
SEND FOR REPRINTS

"SERVICE MAINTENANCE CONTRACTS AND AVERAGE CHARGES FOR SERVICE PARTS AND OPERATIONS."

Only 50¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning, Heating & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

"A CASE OF COOL JUDGMENT"



FLO-COLD DRINKMASTER
STAINLESS STEEL CUBER — COOLER.
SOLD THRU DEALERS ONLY
WRITE
United Friguator Engrs.
MENOMINEE, MICH.
AVAILABLE IN SIZES 4 to 10 FT.

— Available Now —
THE 1959 SPECIFICATIONS GUIDE
Complete 'specs' for all types of air conditioners
Order Today — while the supply lasts
1–9 copies ($1.00 ea.) 10–49 copies ($.75 ea.)
50 or more ($.50 ea.)
AIR CONDITIONING, HEATING & REFRIGERATION NEWS
450 W. Fort St. Detroit 26, Michigan

Ready for Steel Strike--

(Concluded from Page 1, Col. 5)

"Actually, with our annual vacation and inventory period of three weeks starting Aug. 3, we are generally prepared for normal operations into September."

Henry M. Haase, president of York Div. of Borg-Warner Corp., declared, "Normal material reserves will carry our production facilities approximately 30 to 60 days with the possibility of obtaining emergency needs from other divisions of Borg-Warner.

'Record Sales Might Complicate Picture'

"The only complication in this picture is the record breaking level of incoming orders. This could alter our reserve stock. We have prepared for the possibility of a strike by building our steel stockpile to the highest level consistent with good inventory practice."

Benjamin R. Ebersman, president of Mathes Co., commented, "We have purchased steel only for normal production through the second quarter of the year. If a steel strike occurs and is not settled, we will be seriously handicapped and will have to shut down."

H. Morrison, Jr., executive vice president of Morrison Products, Inc. asserted, "We believe that we should have enough steel on hand for eight weeks. However, with the increase in business we are now experiencing, we may run into trouble in four to six weeks.

"We have laid in an eight weeks' supply based on our 1956 usage—our best year."

Another blower manufacturer, F. W. Brundage of the Brundage Co. could ride out a 60 or 90-day steel strike.

"A 90-day strike would probably hurt us," declared F. W. Brundage, president, "because some of our customers would undoubtedly run out of steel and stop buying our products. Also we might have trouble getting other materials after a 90-day steel strike."

A Dunham-Bush, Inc. official did not think his company would feel the effect of the strike for six to eight weeks.

"In anticipation of a strike we are stocking an additional 60 days' supply of critical steel parts. Arrangements have also been made with our suppliers to stock 60 days' supply of steel required in manufacturing of our parts," he noted.

George Myers, director of manufacturing for Penn Controls, Inc., reported that the company has erected a storage facility and is storing enough steel "so that we hope to supply our customers for at least 10 weeks."

Acme Industries, Inc. has stocked sufficient steel to take care of its needs for 90 days. But, said an official, "if business continues at the present high level and the strike is prolonged, we naturally would be hampered because we use a great deal of steel in the fabrication of our products."

'Most Units Have Been Shifted to Aluminum'

Tenney Engineering, Inc. does not expect to be hurt too badly by a strike. It has an additional 30 to 60 days' supply, but notes that most of its units have now been changed to aluminum.

Connor Engineering Corp. also believes that a strike of over two months would hurt, but "up to that point, blanket orders with mill and supply houses should cover most of our normal steel requirements."

In the commercial refrigeration field, McCray Refrigerator Co. and the Scotsman, Queen Products Div. of King-Seely Corp. said they have increased inventories, Scotsman to last through September.

A small manufacturer, Cincinnati Sub Zero Products, faced a special problem in the event of a long strike. "Inasmuch as our equipment is fabricated from steel cabinets and inner chambers on a custom-built basis, we are limited as to how far we can request our steel fabricator to protect us on in-stock material," R. J. Jacobsen, president, explained.

John Norris, president of Lennox Industries, Inc., said, "We can ride through a 45-day steel strike with little more than spotty upset to our heating and air conditioning production.

"You can never, however, anticipate exactly the types and sizes of steel that will be required for sales needs. Therefore, we will be in trouble on certain items during any steel strike, but in definite trouble with a strike beyond 45 days."

Long Strike Would Mean 'Selective Production'

Another air conditioning equipment manufacturer, who did not want the name of his company used, said that in the event of a prolonged strike, he would have to produce on a selective basis.

"In other words," he said, "we would have to produce equipment which would permit us to carry the operation as best as we can as long as we can, gradually curtailing production as the material is used up.

"In anticipation of such a situation, we are purchasing certain special items of material and bringing them into stock in order to insure complete production of business already sold."

Automobile air conditioning manufacturer John E. Mitchell Co., Inc. believes that a steel strike will have no effect on its operations as it has built inventory ahead.

Versatile Air Conditioning

AMERICAN THREAD Co. solved the problem of an interlocking temperature-humidity system in its New York City building through a versatile application of air conditioning equipment. The solution provided by E. L. Bunch, plant engineer, Park West Air Conditioning Co., contractor, Wholesale Distributors, Inc., wholesaler, and Dunham-Bush, Inc., equipment manufacturer, involved this system. A 45-ton load is handled by three 15-ton Heat-X package chillers. Each chiller is equipped with two 7½-ton Brunner-Metics. A 50-ton indoor Dunham-Bush tower and pumps are employed. Johnson controlers are used with a Brunner air compressor. Already proven successful in use, the interlocking system permits conditioning for any or all of three zones for critical area, IBM area, accounting and bookkeeping area. In addition to design for three-way control, the interlocked system localizes possible failure points and assures dependable operation without shutdown.

NEW Carrier "CANT-CLOG" SPRAY NOZZLE

Revolutionary new self-cleaning spray nozzle reduces maintenance and maintains high system capacity. Ideal for original equipment or replacement on cooling towers, air washers, spray-coil units, etc. Low in cost. Installed in seconds. Available as replacement caps, or complete nozzles. For ratings and information, write Carrier Corporation, Syracuse, New York.

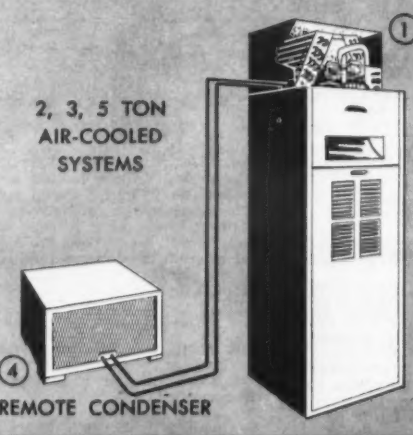
ROYAL

THE MOST COMPLETE GAS HEATING AND AIR CONDITIONING LINE FROM ONE RELIABLE SOURCE

Chattanooga

from Chattanooga

A COMPLETE RESIDENTIAL SUMMER AIR CONDITIONING SYSTEM FOR LESS THAN MANY CONDENSERS ALONE!


1 EVAPORATOR COIL INSULATED HOUSING
2 MH SUMMER-WINTER THERMOSTATS
3 MH LOW VOLTAGE CONTROL PANEL
2, 3, 5 TON AIR-COOLED SYSTEMS
4 REMOTE CONDENSER

All Chattanooga 80,000 BTU Furnaces deliver 1200 C.F.M. at .5 S.P. 3 TONS COOLING! 120,000 BTU furnaces deliver 2000 C.F.M. at .5 S.P. - 5 TONS COOLING!

Quality Since 1891

CHATTANOOGA ROYAL COMPANY
CHATTANOOGA 6, TENNESSEE

NOW

an entirely new concept in water cooler design!

Completely self-contained, refrigerated electric wall fountain. Capacity: 13 g. p. h.

TEMPRITE

... the "quality line" presents

WALL-TEMP

Model WT-13

With completely new functional beauty and great new flexibility—wall mounted model WT-13, by Temprite, presents an entirely new concept in the design engineering of drinking water coolers. Designed for maximum architectural efficiency wherever self-contained coolers are specified—Model WT-13 is in complete harmony with today's building trends.

1 Mounts flush to wall.
2 Fully concealed plumbing.
3 Ample head room.
4 Floor cleanliness; foot freedom.
5 Extra deep basin.
6 Mounts at child's height if desired.

TEMPRITE PRODUCTS CORPORATION
P.O. Box 72-A, E. Maple Rd., Birmingham, Mich.

Send me literature on the new Temprite "WALL-TEMP" Model WT-13 self-contained water-coolers.

Company_____

Name_____

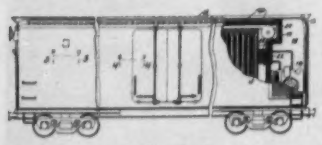
Address_____

City_____ Zone____ State_____

PATENTS

Week of Jan. 20 (Continued)

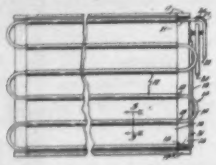
2,869,336. REFRIGERATING APPARATUS. John M. Smidl, Wheaton, Coriess B. Nelson, Chicago, and Swen W. Nelson, Lyons, Ill., assignors to General Motors Corp.



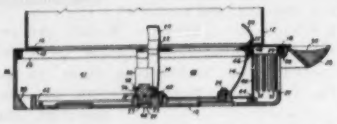
1. In a refrigerated car, means forming a lading storage space having a wall structure comprising an outer metallic sheet, an intermediate metallic sheet, insulation between said outer sheet and said intermediate sheet, an inner sheet adjacent said intermediate sheet and forming with said intermediate sheet an air passage for receiving refrigerated air for cooling said storage space, means including an evaporator for refrigerating air, and means including a fan for circulating said refrigerated air in thermal exchange relationship with said evaporator and thereafter through said air passage. . . .

2,869,337. REFRIGERATION EVAPORATOR WITH CLINCH-TYPE PLATES. William A. Collins, Dowagiac, Mich., assignor to Rudy Mfg. Co., Dowagiac, Mich.

2. An evaporator formed from two continuous sinuously formed tubes having straight portions joined by oppositely disposed loop ends, two plates, each having channel portions receiving the straight portions of the formed tube mated therewith and clinched thereabout, end members selected to space said plates a desired distance apart to form a closed assembly of desired capacity, a cross-connecting tube of sinuous form interconnecting the two formed tubes which are clinched respectively to the spaced plates, and a clip for retaining the sinuously formed cross-connecting tube against the adjacent end members.



2,869,449. AIR DIFFUSING DEVICE. Otto A. Labus, La Cross, Wis., assignor to The Trane Co., La Crosse, Wis.

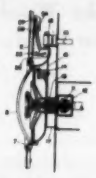


1. A diffuser for delivering air into a conditioned space comprising a hollow body having a bottom wall, side walls and an open side opposite and substantially parallel to said bottom wall, said open side being adapted to be secured to an air supply conduit in the conditioned space, said hollow body having interior walls extending upwardly from the bottom wall and inwardly from the side walls and dividing said hollow body into a first chamber and a second chamber with a valve opening between the first chamber and the second chamber. . . .

2,869,450. AIR REGISTER OF THE WALL TYPE. Robert L. Leigh, Grand Rapids, Mich., assignor to Air Control Products, Inc., Coopersville, Mich.

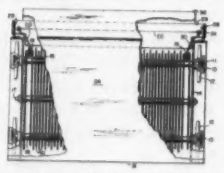
1. A wall register comprising a rear wall having a forwardly projecting top flange, end walls with upright rear edges, horizontal top edges, short upright front edges and rearwardly stepped intermediate front edges between said upright front and top edges and having inwardly projecting flanges at their rear, top and front and intermediate edges, the rear wall being removably secured to the flanges on the rear edges of the end walls with the flange on its upper edge spaced upwardly relative to the upper ends of the end walls, a front wall removably secured to the upright front flanges of said end walls and having rearwardly then upwardly inclined top flanges. . . .

2,869,505. CONTROL CENTER. Vernon R. Kessler and William A. La Grange, Syracuse, N. Y., assignors to Carrier Corp., Syracuse, N. Y.



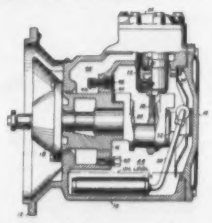
1. As a new article of manufacture a control center comprising a first rotatable operator, a second rotatable operator, at least one reciprocatingly actuated operator disposed rearwardly of said first and second rotatable operators, at least one of said rotatable operators carrying indicia, a transparent cover member disposed before the operators, said transparent cover member also having indicia to coact with the indicia on at least one rotatable operator to visually indicate degrees of angular disposition of the rotatable operator.

2,869,678. ELECTROSTATIC PRECIPITATORS. John W. Roberts, Norwood, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.



1. An electrostatic precipitator comprising a plurality of spaced-apart, parallel, charge and ground collector plates, and structural end plates, the end charge plates being adjacent and structural end plates, the plates next adjacent said end charge plates being charge plates, the charge and ground plates between said next adjacent charge plates being alternately arranged, ionizer wire supporting members between and attached to said end and next adjacent charge plates, ionizer wire supporting arms of spring metal attached to said members, and ionizer wires attached at their ends to said arms.

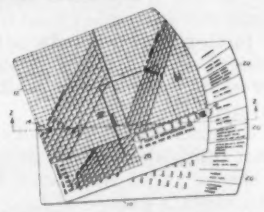
2,869,775. RECIPROCATING COMPRESSOR APPARATUS. Emil T. Neubauer, La Crosse, Wis., assignor to The Trane Co., La Crosse, Wis.



1. A compressor comprising a housing, cylinders in said housing, reciprocating pistons operating in said cylinders, a partition in said housing dividing said housing into a crankcase and a suction chamber, first check valve means in said partition for conducting fluid from the crankcase to the suction chamber, and second check valve means in said partition for conducting fluid from the suction chamber to the crankcase, said first check valve means having a greater flow area than said second check valve means.

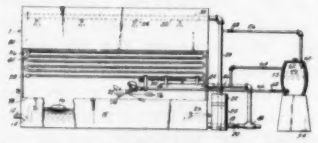
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

2,869,787. REFRIGERATION LOAD CALCULATOR. David D. Cordy, La Crosse, Wis., assignor to The Trane Co., La Crosse, Wis.



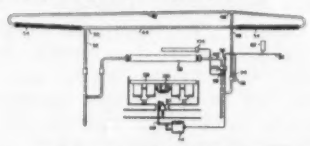
A calculator for determining the refrigeration requirements of a room comprising a base member, an indexable member, means pivotally mounting said indexable member on said base member, a first scale on said base member and having refrigeration requirements for various types of rooms, a slot in said indexable member uncovering selected portions of said first scale, a second scale of outdoor dry bulb and wet bulb temperatures on said indexable member, a third scale of indoor dry bulb temperature on said indexable member, a fourth scale of indoor relative humidity on said indexable member. . . .

2,869,831. WATER TREATING APPARATUS. Dale L. Brockelsby, Huntington Park, Calif., assignor, by mesne assignments, to Borg-Warner Corp., Chicago.



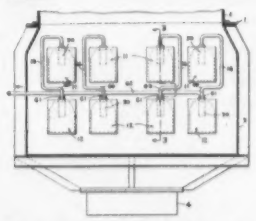
1. In a heat-exchanger having a sump containing a body of water, a bank of tubes for the passage of a refrigerant therethrough, and means for circulating water from said sump over said bank of tubes; water treating means comprising a reservoir for a water treating solution, a pipe line communicating said reservoir with said heat-exchanger sump and terminating in a control valve. . . .

2,869,832. APPARATUS FOR AIR CONDITIONING. John W. McElgin, Philadelphia, Pa., assignor to John J. Nesbit, Inc., Philadelphia, Pa.



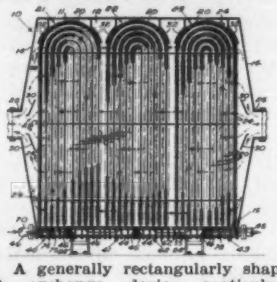
1. In an air conditioning system for positioning against the wall of a room, the combination of a main heating and ventilating unit having a heat exchange element and a blower, said main unit being positioned against the wall of a room and having both inside and outside air inlets and an air outlet on the top thereof, a damper in said main unit for inversely varying the areas of said air inlets, there being means in the air outlet of said main unit to direct heated air upwardly and outwardly into the room to raise the temperature thereof to a desired level. . . .

2,869,833. MODULAR HEAT EXCHANGER. David Aronson, Upper Montclair, and George P. Melick, Murray Hill, N. J., assignors to Worthington Corp.



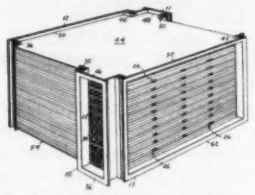
4. In a non-contacting type heat exchanger including a shell, support heads at each end of said shell forming a vapor space, and said support heads each having a number of openings in alignment with each other, the combination with said support heads of a plurality of discrete and independent tube bundles each having spaced tube sheets at their respective ends adapted to be connected between said support heads in a pair of aligned openings, a plurality of tubes in said tube bundle units connected between said tube sheets. . . .

2,869,834. HEAT EXCHANGER. John A. Clark, Jr., Wheaton, Ill., and John J. Fischer, East Stroudsburg, Pa., assignors to The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.



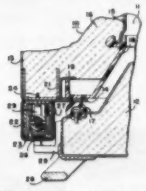
1. A generally rectangularly shaped heat exchange device particularly adapted to withstand relatively high and low fluid pressures at opposite sides of the heat exchange partitions thereof, said device comprising a single rectangular shaped flat metal tube-sheet of high pressure-resistant form, a plurality of box-shaped bonnets in opposed relation to said tube-sheet and aligned in the direction of the long axis thereof and including a first bonnet and a last bonnet. . . .

2,869,835. HEAT EXCHANGER. Alan G. Butt, La Crosse, Wis., assignor to The Trane Co., La Crosse, Wis.



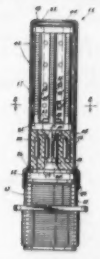
1. A heat exchanger for two confined fluids comprising a plurality of envelope components stacked one above the other and forming passageways for one fluid, members extending between said envelope components along two opposite sides to space said envelope components and to provide a passageway for a second fluid. . . .

2,869,952. DOOR LATCH. Orson V. Saunders, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



1. A unitary structure comprising in combination, a refrigerator cabinet having main insulated walls defining an open front food storage compartment therein, said cabinet also having non-insulated wall portions directed forwardly of the front of said main compartment walls, said forwardly directed wall portions being substantially flush with the outer surface of said main walls of the cabinet and extending along sides of said compartment front opening in spaced relation thereto whereby to form a recess in the front face of said cabinet having a door jamb adjacent to and extending around the compartment opening, a door for said compartment opening hingedly mounted on said cabinet. . . .

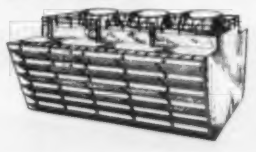
2,870,306. WIDE RANGE ELECTRICAL HUMIDITY-SENSING UNIT. Carlton E. Ohlheiser, Silver Spring, Md., assignor to American Instrument Co., Inc., Silver Spring, Md.



1. An electrical humidity-sensing unit comprising a base having a pair of terminals, a pair of parallel spaced supports mounted on said base, a plurality of rod members of insulating material rigidly secured in spaced parallel relation between said supports, respective pairs of bifilar conductors wound on said rod members. . . .

DESIGN

184,288. COOLING TOWER. Leon T. Mart, Mission Township, Johnson County, Kan., assignor to The Marley Co., Kansas City, Mo.



CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

CHIEF ENGINEER—Estimator—Over 25 years with three major contracting organizations full charge of design, estimating, and execution of heating, air conditioning, refrigeration, low temperature (140 below zero) and process piping. Require eighteen thousand annually. Will consider profit percentage. BOX A6257, Air Conditioning, Heating & Refrigeration News.

FOR MANUFACTURERS only: Service representation on commercial, industrial and air conditioning products. Territory includes Florida, Georgia, Alabama and S. Carolina. Dignified, qualified, and experienced representation at a fraction of the cost of sending your representatives into the area. For full information, please write BOX A6258, Air Conditioning, Heating & Refrigeration News.

EXPERIENCED COMMERCIAL service & installation man desires year round position with progressive company. Family willing to relocate under satisfactory conditions. Available in two weeks. BOX A6264, Air Conditioning, Heating & Refrigeration News.

POSITIONS AVAILABLE

ENGINEERING GRADUATE with mass production background, 5-10 years' experience in time study, plant layout, methods, etc. Experience in gas regulator and gas meter field desirable but not essential. Salary commensurate with ability and experience. To age 40. Send resume including present salary, to: Employment Manager, ARKLA AIR CONDITIONING CORP., Evansville 7, Ind.

MANUFACTURER'S REPRESENTATIVE for atmospheric and mechanical redwood cooling towers. 3 to 60 tons and multiples. For Kansas, Missouri, Arkansas, Tennessee, Northern Alabama and Georgia, Carolinas, Kentucky. Prefer experienced men. Firm established since 1949. Address reply to: A. J. BOND, C.P.A.—3400 Montrose Blvd. Room 306—Houston 6, Texas.

TERRITORIES OPEN for new, superior, tested and proven F-K Scale Solvent, Algaecide and Water Treatment. Letterhead reply to F-K COMPANY, 605 S. Peoria, Tulsa, Oklahoma. Give full resume in first reply.

WE CAN place a sone sales manager, experienced in the commercial refrigeration field, who can sell direct to chains and wholesale grocers as well as to supervise established dealers. If you are at the Super Market Convention in Atlantic City May 24th through 27th, stop in at Booths 849-851-853 and talk to us. J. S. Twist, SHERER-GILLETT CO., Marshall, Michigan.

SCOTSMAN EXPERIENCED service man for cube, flake machines and carbonation. Must be familiar with complete re-dash operation and service. If you have less than two years' experience do not reply. Furnish references in servicing Scotsman. Reply: Mr. Harold Teufel, General Manager, WATERS EQUIPMENT CO., Box 10013, Tampa 9, Florida.

ENGINEER REFRIGERATION Controls—To head a department on design and development of commercial refrigeration control valves of all types; national corporation with midwestern manufacturing and engineering facility; salary and bonus commensurate with work background and ability. Send full details, qualifications and personal data to BOX A6172, Air Conditioning, Heating & Refrigeration News.

MECHANICAL ENGINEER, ME degree, project engineering work on portable air conditioning, refrigeration systems. BOX A6252, Air Conditioning, Heating & Refrigeration News.

WANTED: EXPERIENCED service engineer. Must have minimum of 5 years field service. Should also have some office experience. Will require some traveling. Our company is a fast growing compressor and condensing unit manufacturer located in the midwest. Good opportunity for advancement. BOX A6256, Air Conditioning, Heating & Refrigeration News.

EQUIPMENT FOR SALE

RESIDENTIAL & COMMERCIAL air conditioners—air cooled 1 ph.—230V. 2 hp. highside with horiz. evap. $357.00; 3 hp.—$489.00; 4 hp.—$684.00; 5 hp.—$761.00. 2 hp. self contained horiz. units $306.00; 3 hp.—$504.00; 4 hp.—$599.00. Additional 5% discount for quantities of 5 units one order to one destination. ARCTICAIRE MFG. CO., 2201 Grand—K. C., Mo., Telephone BA 1-7055.

NEW PACKAGED water chillers—Prewired control panel with high-low, operating, freeze, and circulator relay controls. 230 volt, 60 cycle, 1 or 3 phase current. 1¼ hp. water cooled $162.00; 3 hp. water cooled $417.00; 2 hp. air cooled $246.00; 3 hp. air cooled $617.00; terms-cash, F.O.B. manufacturer. BOX A6234, Air Conditioning, Heating & Refrigeration News.

MISCELLANEOUS

CONTROLS & RELAYS repaired like new. UNITED CONTROL REPAIR COMPANY, new address: 151 E. 126th Street, New York 35, New York.

ATTENTION REFRIGERATION Servicemen: Would you be interested in saving from 25 to 50% on many standard refrigeration and air conditioning parts and supplies? Send for our free circulars and catalogs. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

Servicing Automobile Air Conditioners

(Vol. 4 — 1959 Models)

BY C. DALE MERICLE

With this issue we continue the fourth series of articles describing service procedures on automobile air conditioning units. In this and subsequent instalments 1959 models of the leading "independents" and automobile manufacturers will be described in detail.

LO-MERC

Lo-Merc Corp.
2402 Houston Ave.
Houston, Texas

Three under-dash models are included in the 1959 line of Lo-Merc automobile air conditioners.

All three follow the conventional arrangement of driving the engine-mounted compressor through a magnetic clutch, locating the condenser in front of the car radiator, and suspending the evaporator case assembly beneath the dash.

Two top models in the 1959 line are identical in appearance. One has dual squirrel cage blowers driven off a single double-shafted motor; second model, called the "Twin Air," has two propeller type fans, each powered by its own motor.

Both of the top models employ pushbutton controls and an adjustable thermostatic temperature control (Fig. 1).

Third model (Fig. 2) has a single fan and a non-adjustable thermostat. Its general appearance is quite similar to the top two models, however.

Refrigerant-12 is used in all 1959 Lo-Merc units.

Compressor

Depending on the make and model of the car, one of three types of compressors may be found on Lo-Merc systems.

Some installations employ the Tecumseh HH compressor in vertical or horizontal mounting; others use the Tecumseh "low boy" LBA model; many Lo-Merc installations feature the York A209 in either vertical or horizontal mounting.

Magnetic clutches are standard on Lo-Merc units.

Clutches used are either the Warner or the Electrolock. The Electrolock clutch is internally grounded, so the only electrical connection is to the lead from the evaporator control panel. The Warner clutch has two leads, one of which has to be externally grounded while the other is connected to the unit control panel.

Condenser

A two-row condenser is mounted in front of the car radiator on Lo-Merc installations, on the right side in others.

All Lo-Merc systems employ a combination receiver, drier, and sight glass. It is usually located in the engine compartment on the inside fender pan.

Evaporator

The 1959 Lo-Merc evaporator case assembly, installed beneath the dash, includes the evaporator coil, thermostatic expansion valve, adjustable air outlets, blower(s), and controls.

Three round adjustable air outlets are provided on the front of the case and there's also a small one at each end.

As stated previously, one 1959 Lo-Merc model employs two squirrel cage blowers driven by a single motor; a second model has two propeller fans and two motors; the third has a single propeller fan.

Controls

Controls are mounted on the top at the left side of 1959 Lo-Merc units.

Pushbutton controls and an adjustable temperature control are provided on the two dual-fan models.

There are six pushbuttons to control blower and clutch operation, permitting selection of "high," "medium," or "low" blower speeds, operation of the magnetic clutch and compressor under "automatic" (thermostat) control or "manual" (constant), and an "off" pushbutton to turn clutch and blowers off.

In addition, on these two models there is a rotating control to adjust the temperature setting of the thermostat controlling the cycling of the magnetic clutch and compressor.

On the single fan model there are two rotating control knobs. One knob controls blower operation, the other turns the clutch on or off. With the clutch control knob in "on" position, the clutch is cycled by a thermostat to prevent icing of the evaporator, but this thermostat does not control evaporator temperature above icing point. Setting of his thermostat cut-out point can be adjusted in the field.

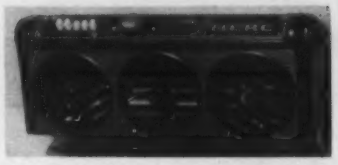


FIG. 1—Pushbutton controls and adjustable thermostat are features of 1959 Lo-Merc twin-fan models.

FIG. 2—Single fan 1959 Lo-Merc conditioner has de-icing thermostat.

Heat Exchanger

Manufactured also by Lo-Merc and offered as an optional accessory with its own air conditioners as well as other makes, an "Auto-Matic Cooler" will be found on some installations.

This is a heat exchanger which is connected into the suction line between the evaporator case and the compressor and is usually mounted in the engine compartment. Hose connections are also made to the device between the engine water pump and the radiator.

Suction gas from the evaporator flowing through the inner copper coil of the device cools the engine coolant water circulating outside the coil.

The device is claimed to prevent over-heating of the car engine by the air conditioner.

SERVICE HINTS

Evacuating System

Use of a good vacuum pump to evacuate a Lo-Merc system following initial installation or opening of the system for repairs is recommended by the manufacturer to remove air and as much moisture as possible.

The unit itself can be operated for evacuation, however, the company also advises.

Charging System

Lo-Merc units are charged through the low side with Refrigerant-12 in the vapor state in the usual manner.

Correct charge in all three 1959 models is 2 to 2½ lbs.

Trouble Shooting

Service problems encountered on the 1959 Lo-Merc air conditioners will be those common to under-dash units which control temperature by means of a thermostat which cycles the magnetic clutch and compressor.

Although the company's "Auto-Matic Cooler" heat exchanger, which will be found on some installations, is claimed to correct overheating caused by the air conditioner, the device obviously is not intended to correct overheating caused by faulty engine timing; clogged radiator, block, or radiator hoses; engine thermostat stuck in closed or partially closed position; radiator pressure cap leaking, etc.

These causes of engine overheating will obviously have to be corrected to achieve maximum benefit of the heat exchanger.

New ESKIMO HORIZONTAL 2-Ton WATER COOLED **AIR CONDITIONING UNIT**

SPECIAL AT **$225.00**

F.O.B. WAREHOUSE, LOS ANGELES

5% freight allowance on order of four or more units, IN ONE ORDER.

COMPLETELY AUTOMATIC CONTROLS
HERMETICALLY SEALED REFRIGERATION CIRCUIT
WATER COOLED REFRIGERATION CIRCUIT
ONE YEAR WARRANTY

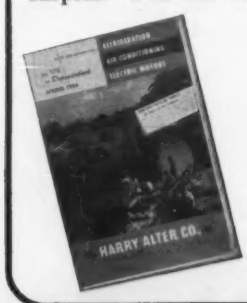
These units are equipped with TECUMSEH COMPRESSORS—GENERAL CONTROLS, MASTER CONTROL PANEL, HALSTEAD & MITCHELL CONDENSING COILS. OTHER MODELS AT VERY LOW PRICES.
Open billing to accounts with satisfactory D&B rating.

For additional information, phone, wire or write to:

ESKIMO PRODUCTS DISTRIBUTORS
2146 Sunset Blvd., Los Angeles 26, Calif.
Phone DUnkirk 5-2239

OUR BARGAINS JUST CAN'T BE TOUCHED

That's because they're so very *hot.* Every month Harry Alter's buyers fill our famous Flyer with all kinds of special closeout bargains carefully picked from manufacturer's surplus. You can save 50% or more, from the regular wholesale price.



We're Real Specialists in
REFRIGERATION • AIR CONDITIONING • ELECTRIC MOTORS
SUPPLIES and PARTS

SAVE MONEY, time and effort by ordering from our new *Dependabook,* the most complete catalog of all. 232 pages. Over 10,000 items carried in stock. *Wholesale only.* Your orders filled really fast by mail, or they can be picked up at one of our six big warehouses.

Write on your letterhead for the 1959 DEPENDABOOK...
Also our monthly Flyer of surplus and close-out Bargains.

THE HARRY ALTER CO., INC.

1717 S. Wabash Av., Chicago 16, Ill. | 134 Lafayette St., New York 13, N.Y. | 2332 Irving Blvd., Dallas 7, Texas | 695 Stewart Ave., S.W., Atlanta 10, Ga.

FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

WATSCO PRESENTS.....

A BRAND NEW CONCEPT IN STRAINER - CAPILLARY DESIGN

STRAIN-O-KAP SR.®

PART NO. SR-6

U.S. Pat. Pend.

only one STRAIN-O-KAP SR. for ALL applications ranging from ⅓ h.p. to 1 h.p. inclusive

Only one STRAIN-O-KAP SR. for:
- *low, medium or high temperature systems*
- *use with refrigerants 12 or 22*
- *1/4", 5/16" or 3/8" liquid line*

Install STRAIN-O-KAP SR. on any one of the above installations:
- WITHOUT CHANGING THE CAP TUBE LENGTH
- WITHOUT SPECIAL TOOLS
- AT ONE LOW PRICE

FOR ADDITIONAL INFORMATION ASK YOUR WHOLESALER OR SEND FOR OUR 1959 CATALOG NO. 21

Dept. NN-5

WATSCO INC.
1020 E. 15th STREET • HIALEAH, FLORIDA

International Congress of Refrigeration Set for Aug. 19-26

COPENHAGEN, Denmark — Danish experiments with radiation chilling of meat carried out in a room without air circulation to reduce shrinkage will be described at the 10th International Congress of Refrigeration to be held here Aug. 19-26.

Other papers to be presented at the Congress will cover such subjects as thermoelectric refrigeration, freeze drying of food, cold and human beings, hypothermia, and keeping serum, vaccine, and tissue.

The Congress will be conducted under the auspices of the International Institute of Refrigeration for the purpose of taking stock of the rapid development in the science, technique, and applications of refrigeration.

All sessions will be conducted in English and French and all papers presented will be written in those languages.

In addition to the general sessions, nine commissions of the International Institute of Refrigeration will meet to present, study, and discuss reports and contributions on special subjects submitted by members.

Other highlights of the Congress will include an exhibition of chilled and frozen foods from different countries, exhibitions of educational material, a continuous showing of educational films, and visits of scientific, technical, and industrial interest.

Congress officials said that Russian refrigeration authorities will participate in eight commission sessions and two plenary sessions. Their subjects will range from experience in operating mechanically refrigerated railway trains in the U.S.S.R. to the method of thermodynamic analysis of low temperature rectification of binary mixtures.

Anyone may participate in the Congress by paying a registration fee and participation fee. Registration, before July 15 is 80 Danish Krone (about $11.60) and after that date 120 Danish Krone (about $17.40).

Full membership fee is 240 D.K. (about $34.80), entitling one to advance copies of papers from a technical commission of his choice, full access to Congress meetings, and a copy of the proceedings. Associate members at 140 D.K. (about $20.10) will not get a copy of the proceedings.

Further information may be obtained from the Congress Secretariat at Refricongress, Postbox 57, Roskilde, Denmark.

International Institute Compiles Multi-lingual Refrigeration Dictionary

PARIS, France — A multilingual refrigeration dictionary is being compiled by the International Institute of Refrigeration here, it has been announced recently.

According to the IIR, the objective is to produce a document giving:

- The equivalent expressions used in a great many languages for all the more important ideas connected with refrigeration.
- For every word which is specifically related to refrigeration, and of which the meaning is not obvious, a short definition in English and in French.
- A methodical classification of ideas, with their definitions if necessary, on the one hand, and on the other, alphabetical indices for every language in the dictionary.

A preliminary report from the IIR gives hundreds of pertinent translations and equivalents in French and English. Classifications of terms include: Equipment for the Production of Cold *(Materiel de Production du Froid)*, Piping, Regulation, and Safety *(Tuyauterie, Reglage et Securite)*, Basic Data and Instrumentation *(Notions de Base et Instruments de Mesure)*.

Death Notices

Chester B. Morrison

SCARSDALE, N. Y.—Chester B. Morrison, 73, who retired last June as vice president of the York Div. of Borg-Warner International Corp., died recently at his home after an illness of three months.

He had joined York in 1911 following graduation from Pennsylvania State college. He was a member of the American Society of Refrigerating Engineers and the British Institute of Refrigeration.

William J. Knowles

ELIZABETH, N. J.—William J. Knowles, president, Grand Rapids Cabinet Co., and also Engineering & Refrigeration Corp., Jersey City, died here recently.

Heart Disease--

(Concluded from Page 1, Col. 5)

attending personnel, removed allergens from the environment, and increased the tolerance of enforced bed rest," the doctors concluded.

The physicians stated that air conditioning as an adjunct to regular treatment "has not received the emphasis in medical literature that it deserves."

In their study, the doctors found that air conditioning benefited most patients, although a few could not stand it at all. They complained of the cold and of having "stuffy" noses.

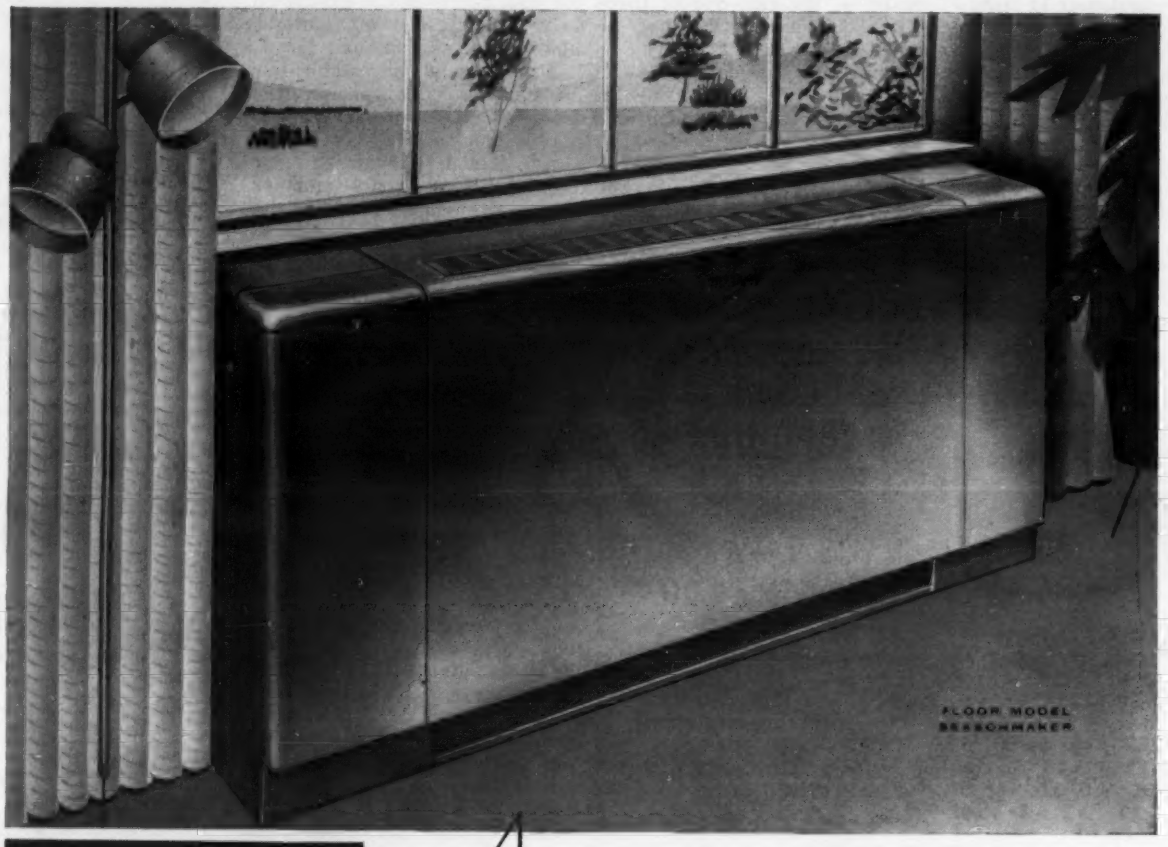
Heart-disease patients are helped, the physicians said, because the air conditioning eliminates sweating which causes the cardiovascular system to work harder than usual. Thus it prevents additional strain on an already damaged heart.

California Hearing--

(Concluded from Page 1, Col. 2)

a whole supports this measure, according to Henry B. Ely, representing the California Council of Refrigeration and Air Conditioning Contractors Associations.

Ely reported that last month he had appeared successfully before the Senate judiciary committee to oppose discrimination against subcontractors in the proposed lien notice law. This law would require a notice of claim to the general contractor and owner at least 15 days prior to filing the lien.



5 SIZES EACH
only 8½" thin

4 new thin-line design
INDIVIDUAL ROOM
SEASONMAKERS...

These McQuay thin-line design Seasonmaker individual room air conditioning units are only 8½ inches thin and 25 inches high or deep, and offer you more compact, modern styling, requiring a minimum of installation space.

There are four models—each in five sizes, 220, 330, 440, 520 and 640 cfm. The four smaller sizes are equipped with 1050 rpm motors, while the largest has 1500 rpm. Hand-of-coil connections are easily reversed in the field. Filters are changeable without removing decorative panels.

All McQuay Seasonmakers are ultra-quiet in operation and furnish individual room comfort at any desired temperature level. They are quick and easy to install and service, and ideal for multi-room buildings such as hotels, motels, schools, hospitals, offices and residences. Call the McQuay representative in or near your city for complete information about these new thin-line design Seasonmakers, or write McQuay, Inc., 1607 Broadway Street N. E., Minneapolis 13, Minnesota.

McQuay INC.
AIR CONDITIONING • HEATING • REFRIGERATION